September, 1950

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EDISON ELECTRIC INSTITUTE BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

May, 1949-1950

SOURCE AND DISPOSAL OF ENERGY—MONTH OF MAY

	1950	1949	%
GENERATION* (Net)			
By Fuel Burning Plants	18,047,577,000	15,290,497,000	+18.0
By Water Power Plants	8,477,107,000	8,057,727,000	+ 5.2
Total Generation	**26,524,684,000**	**23,348,224,000**	**+13.6**
Add—Net Imports Over International Boundaries	145,047,000	129,600,000	+11.9
Less—Company Use	115,145,000	117,510,000	− 2.0
Less—Energy Used by Producer	596,530,000	360,105,000	+65.7
Net Energy for Distribution	**25,958,056,000**	**23,000,209,000**	**+12.9**
Losses and Unaccounted for	3,563,810,000	3,095,230,000	+15.1
Sales to Ultimate Customers	**22,394,246,000**	**19,904,979,000**	**+12.5**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of May 31st			
Residential or Domestic	36,363,295	34,280,197	+ 6.1
Rural (Distinct Rural Rates)	1,549,630	1,721,962	−10.0**
Commercial or Industrial:			
Small Light and Power	5,392,399	5,187,076	+ 4.0
Large Light and Power	227,634	228.837	− 0.5
Other Customers	151,292	143.422	+ 5.5
Total Ultimate Customers	**43,684,250**	**41,561,494**	**+ 5.1**
KILOWATTHOUR SALES—During Month of May			
Residential or Domestic	5,234,994,000	4,464,261,000	+17.3
Rural (Distinct Rural Rates)	634,171,000	627,327,000	+ 1.1
Commercial or Industrial:			
Small Light and Power	3,919,125,000	3,610,657,000	+ 8.5
Large Light and Power	11,299,596,000	9,958,253,000	+13.5
Street and Highway Lighting	205,721,000	190,118,000	+ 8.2
Other Public Authorities	581,103,000	509,381,000	+14.1
Railways and Railroads:			
Street and Interurban Railways	273,973,000	296,364,000	− 7.6
Electrified Steam Railroads	193,716,000	202,389,000	− 4.3
Interdepartmental	51,847,000	46,229,000	+12.2
Total Ultimate Customers	**22,394,246,000**	**19,904,979,000**	**+12.5**
Revenue from Ultimate Customers	**$407,411,300**	**$368,669,800**	**+10.5**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 months ended May 31st			
Kilowatthours per Customer	1,754	1,616	+ 8.5
Average Annual Bill	$51.04	$48.16	+ 6.0
Revenue per Kilowatthour	2.91¢	2.98¢	− 2.3

** Negative Percentage due to Reclassification.
* By Courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 18 SEPTEMBER, 1950 No. 9

Socialism Is Like Polio

By Dr. Christopher Daniels

Excerpts from an address before the San Francisco Electric Club, San Francisco, Calif., June 1950.

EDITOR'S NOTE: Dr. Christopher Daniels is a successful practicing English physician. Before he left England American friends urged him to warn their fellow countrymen of the dangers and pitfalls awaiting this nation if it followed Britain down the road to Socialism. In the few months he has been in America Dr. Daniels has become convinced that we are in the same confused and uncertain state of mind as were his fellows when the Fabian Society began its insidious takeover.

HOW to define Socialism? It is a creed, thought out, written down and urged, some 100 years ago, the product of the disturbed brains of Karl Marx and Engels. It believes in the taking over by the State of the means of production, distribution and exchange, and the control of the citizen in great detail, by the State. And I use the word State in the sense they used it, that is, as the national government and not as you use it here as the government of one of your separate states. It will avoid confusion if I make it clear here that in this talk I shall always mean the national government when I use the words "the State."

The "Communist Manifesto"

These two men were responsible for a document called the "Communist Manifesto." Many attempts have been made by the Socialists to divert attention from the fact that they base their actions on this document but you are left in no doubt that this is so if you read an edition of the Communist Manifesto published a year or two ago with an introduction by Prof. Harold J. Laski in which he gives quite incontrovertible evidence that the Socialists had followed their manifesto up to that point and intended to do so in the future.

Professor Laski was one of the architects of the Socialist Party in England; he certainly knew, if anyone knew, what was in their mind. He was not popular with his party for being so honest, nor for his remarks after the 1945 election as to what was to happen to the non-Socialists, and he was speedily suppressed. But it was too late. He had told the story and disclosed something that the Socialists, even today, try to hide, that Socialists are Socialists and follow the Communist Manifesto.

The Fabian Society

So far as Great Britain was concerned, the Socialists' attack commenced in earnest in 1900 with the foundation of the Fabian Society by Beatrice and Sidney Webb, George Bernard Shaw, Mrs. Annie Besant, Graham Wallas and H. G. Wells; although in fairness to Wells, a man whose sympathies were with the struggling members of the population if anyone's ever were, as soon as he realized the true aims, he left them hurriedly.

The society never numbered more than 4,000 members but they were in deadly earnest, worked hard, quite clear in what they intended to do, and ruthless and Machiavellian in their methods.

Fabian Cynicism

I always marvel at their cynical appraisal of the intelligence of the ordinary citizen. They must regard us as very small fry in being prepared to give such a name as the Fabian Society to their group, and that they were correct in their attitude is clear because there stands before you now a man of some education, I suppose, who never once thought to find out what the word meant, nor although his practice was amongst a highly intelligent group of Londoners, did one ever in 25 years ask if he had realized who the Fabians were or what they were doing.

"Inevitability of Gradualness

The word Fabian, as I now know, is derived from the name of the Roman general, Quintus Fabius, who found that the best way to overcome his enemies was to devour them piecemeal, by lulling one section into passive observation of the destruction of another. He also had a very early perception of the value of the Fifth Column. Sidney Webb brought the whole theory up to date by his phrase, "The inevitability of gradualness." They were well aware of the fact that the complexities of the modern world made it easy for them to tease the man they were fully intending to tax out of existence, into a confused and vulnerable state of mind. They knew that if they abused him and yapped at his heels for being a useless parasite, the better the man he was the more they would worry and confuse him.

They knew that the more they put it into his head that they were intending to destroy him, the shorter they would make his outlook and the more they would stimulate him, from motives of self-preservation, to refrain from correcting the very evils they so strongly criticized.

They were not, you note, at all anxious to have the evils corrected; they were anxious to bring about his downfall so that they could, by marshaling another section of the country to vote for them, bring both under their absolute domination.

How England Was Socialized

Their methods are now well known.

Firstly, they avoided like the plague any mention of Socialism as it is understood today. Almost any other word or phrase was dragged in to describe their activities. Sidney Webb knew, like Lenin, that no nation in its senses would adopt Socialism or Communism voluntarily if it understood its full implications.

Lenin believed in bloody revolution; Sidney Webb believed in the policy of confusion and that sinister phrase, "The inevitability of gradualness." "Permeation" was another word often in his mouth. It was a confusing way of saying Fifth Columnism and another excellent example of the strong grip they had upon the idea of preventing the ordinary man from perceiving what was being forced upon him.

This permeation was first into the Liberal Party, which for centuries had had a large part in the government of Great Britain, and they selected as the man to be betrayed, not a weak or unintelligent man, but an astute and wily Welshman, Lloyd George.

Time does not allow a careful survey of the picture but by 1925, so long ago as that, the Socialists by persuading Lloyd George, the leader of another party, the Liberals, to do their bidding had involved Great Britain in an expenditure of $712,000,000 in social service in one year. This figure was $268,000,000 more than the expenditure on defense and $120,000,000 more than all the ordinary expenses of government.

"Failure of Free Enterprise"

It was, however, incurred by a government that was considered to be a capitalistic government. The resulting confusion was laid at the door of capitalism; it was the failure of free enterprise, and the evils that followed were nothing to do with the generous attempts to meet the Socialists' pleas.

They, of course, knew from the first that there is no compromise along these lines. They had elaborated a first-class technique which induced those not in sympathy with their ideas to adopt them and then to blame that government as representing capitalism for the failure.

Too late Lloyd George woke up to the fact that he had been duped and he began to utter his warnings, but the old Fabian method of picking off a nation piecemeal was proving its success. Business stood idly by while the medical services were tampered with: some doctors were persuaded there might be something to say for taking over the coal mines; those interested in coal mines, that a nationalized transport system might be to their advantage, and so on. Soaking the rich was the unifying cry and no one realized that the whole thing added up irrevocably to Socialism, and the loss of liberty and the abolition of the life they had known and its substitution by an all-powerful State which would impose drastic controls on all members of the population.

The speed of the Fabian success was unbelievable. They were not well organized until 1905 and at that time England was a virile nation, well capable and strenuously endeavoring to meet the demands of progress and to improve conditions for all. The undermining of these efforts while ostensibly supporting them was the Fabian constant effort, and by 1914 they had succeeded in placing some of their members in the Cabinet. By 1923, at the time Lloyd George first perceived his error, they had managed to have one of their members, Ramsay MacDonald, elected to the prime ministership of England and the wole change was effected in 17 years.

"Labor" Party

And who now was the official opposition in the British Parliament? Gone forever was the old Liberal Party and reigning in its stead were the Fabians, who had at that time adopted the highly appealing title of the Labor Party.

The whole transformation was truly an exhibition of the century-old methods of Quintus Fabius. They had permeated and annihilated the Liberals; their final triumph was in persuading Asquith, the Liberal leader, to hand over to them, although they only had 191 seats out of the 615 seats in the Parliament and represented only one-third of the electorate.

They had persuaded a capitalist government to govern on socialistic lines. They had blamed that government for the failure of their own plans which they had methodically sabotaged. They were succeeding beyond all belief in their highly informed policy of confusion and piecemeal engulfment. How they must have chuckled at the stupidity of the nation.

Who Were the Dupes?

And such changes cannot go on without persuading a substantial number of people that they are advisable, and we may profitably spend a few minutes in reviewing the classes of people who were at any rate not opposed to the change. They were:

Firstly, the Fabians themselves and their convinced desciples.

Secondly, those who while not believing in the doctrine, were willing for their own selfish motives to collaborate. For those people, I have nothing but the most complete contempt. They include members of Parliament who knew better and should have been loyal to their principles.

Thirdly, there were the truly terrifying mass of people who were well intentioned but half informed. They were mostly those who sought to obtain personal satisfaction from sponsoring so-called enlightened policies but who did not understand the final result of their actions. These people in England today have received a lesson they will never forget, for they have been abused, taxed, controlled and treated by the Socialistic government with the contempt a Socialist has for those deceived into abandoning a way of living which in general was useful to the community and certainly not a harmful one.

Fourthly, we had the vindictive little failures, The doctor who never could get a practice. The indifferent architect who saw a wonderful shelter from competition as a controller of other people's building enterprise; the third-rater in all walks of life who was available and glad to enter one of the bureaucratic institutions where he could vent his desire for power upon his fellow citizens.

Betrayal of Working Men

Fifthly, we had the working man who was persuaded that he was to be the sole concern of the Labor Party and who, in the main, could not be expected to take more than an opportunist's view of the situation. For the betrayal of those decent working men the Socialists will have a long tally to answer. I have heard more vitriolic abuse of the Socialists from the better class of working man than from any other section of the community.

By 1937 it was obvious that many of these people were waking up to the true intentions of the Fabians and of their domination of the Labor Party,

and it is my own opinion that in normal circumstances this awakening would have gone on to the eventual defeat of the Socialists, but they had in 1939 an unbelievable stroke of luck and Hitler invaded the Sudetenland.

Defense of Britain

The living peril of Germans massing across a short 25 miles of sea turned every true citizen's efforts to an all-out attempt to defend his country. I well remember those days, the epic battle of Britain and the mustering of every person, young and old, sick and well, to the defense of his country.

Because I was a veteran of the first World War, I was put in command of a unit of the Home Guard and solemnly drilled elderly men in the use of broomsticks which we hoped might one day be replaced by rifles.

We sat up all night putting a sticky mess of tar and gasoline into bottles which we intended to throw at the German tanks as they came upon our towns and villages. We listened to that great man, Winston Churchill, as he told us of the realities of our danger and encouraged us in his matchless prose, and we cheerfully endured a hell of bombings, VIs and V2s, until victory came.

I do not recall, during the whole of that time, anyone approaching me with the idea of insuring a conservative government after the war.

But not so with the Fabians.

Systematically and thoroughly they pushed their viewpoint wherever they could; upon the troops at the front and in the factories through the shop stewards, an effort which by its very un-Englishness never evoked the opposition it should have done, and then, with the all-important help from your own great country, the war ended.

The Postwar Take-Over

It was obvious we had to have another election. The Socialists pressed for the earliest possible date, and with many of the troops voting by proxy, with husband separated from wife, and with the ravages of war upon the land, we went to the polls and woke up the next morning to find that the Fabian dream had become a reality and that of the 640 seats in the House of Commons, 400 were in the hands of the Labor Party, and that Winston Churchill, who had led us with such magnificent courage, and ability, was no longer prime minister.

Now I have told you that the Fabians never numbered more than 4,000 members, but of this 400 majority, 230 were members of the Fabian Society and 31 were in high government office and in the Cabinet.

I imagine any group of 4,000 people who could muster 58% of your Senate would feel that they were very much to be counted with.

And what kind of men are they?

Well, the first act of the assembly in the British House of Commons was to sing the revolutionary song *The Red Flag*. I can hardly bring myself to admit it. And the second thing was to announce that they wanted a raise in their pay as members of Parliament. They had described themselves as lawyers, doctors, architects, business men and the like. But so unsuccessful had they been in their private lives that, for the value of their services to their country, they wanted a raise in pay.

Who Were These Men?

And who were these men?

By their own replies to a questionnaire, only 17% had ever attended high school and 43% had attended no school after the age of 14 years. Sixty-five per cent of them were the sons of manual laborers, skilled and unskilled. Now I am the last person, having spent so many years of my life with the poor in hospitals, to say that the son of a manual laborer should not attain any position he can achieve, but I do say that it does not, coupled with no schooling after the age of 14, give him a prescriptive right to govern 50 million people.

But in fact it meant very little, for after an early exuberance they soon found that they were of very little importance. They were there to vote the dictates of their Socialist bosses on pain of being ejected from their posts. To their eternal credit, some of them have stood for their principles and have been ejected, but the majority file in when told and vote as the party dictates.

And we may now spend a moment or two in surveying what they have done, and please never overlook the fact that a million fewer people voted for the Socialists in the 1945 election than voted against them in the previous election.

In other words, the mandate they claim to have had was not from the majority of the people.

And what have these people done with a mandate which represented the will of less than half the population?

They have nationalized medical services, dentistry, coal, gas, electricity, long-distance trucking, civil aviation, internal waterways, railways, buses, subways, and have inflicted controls of the most drastic nature upon housing, currency, travel, clothing, education and on many other aspects of life.

What Nationalization Means

And I should like to say a few words about nationalization because I find very few Americans know what it really means. It does not mean that you carry on your business as before but with stringent government controls; it means that one day you pick up your hat and coat, the photograph of your family which stands on your desk, and you walk out of your office never to return and the bureaucrats take it over lock, stock and barrel. You will be given permission to arbitrate the value of your business, it is true, and tribunals of honest men will arbitrate, but when it comes to payment you will find you are to receive part of a total sum which has been allocated to recompense everyone.

The same applied to the doctors. The methods of deciding the value of their practices was not fair. The compensation was not payable until age 60 or compulsory retirement and, since it represented in most cases a great part of the doctor's life savings, it was a crushing blow, particularly when it is realized that the remuneration they now receive, plus savage taxation, makes it quite impossible for them to save for their retirement.

And at this point perhaps I had better explain why I have not dealt in detail with the workings of the National Health Service. It is because, as I hope to explain to you, it is in my view a sterile and profitless occupation.

Socialist "Cornerstone"

Some years ago I read in a medical article that Lenin had said that "The cornerstone of the arch of a Socialized State was a Socialized system of medicine." I could not make any real sense out of this, and so I went to the British Museum reading room to read what Lenin had said. Slowly I realized that Lenin had appreciated just what the Fabians repeated later, that no nation in its senses would accept Socialism or Communism if they understood what it meant, and that therefore it had to be introduced insidiously and through the emotions. The most emotional thing they could think of was birth, death and sickness, and from that date, wherever

the doctrine has been introduced, it has been the medical services that have been attacked and first taken over.

I do not take a favorable view of the working of the National Health scheme if for no other reason than the appalling cost and the abuses of it, but to me this is the wrong approach. Since 1884 when Bismarck tried it, the medical professions have always been the ones first to be attacked. They have been the objects of the Socialist attack, which have spread out from there. An understanding of this puts the socialization of medicine in the right perspective and enables one to avoid the Socialist trap of being bogged down in futile arguments about the working of the scheme while the true meaning of it is being obscured.

One thing is quite certain, that when Great Britain throws off her Socialist shackles and men can once again go to work to carve out their own lives and young men and women leaving college can have the wide choice of occupation which free men should have, then the limitations of the scheme will sadly reduce the quality of man who will want to enter civil service medicine.

As to the cost of all this socialization, it is, of course, astronomical. The figures are there for anyone to read. In the first 18 months of the National Health Service no less a sum than $2½ billion was spent on it. Now a billion meant nothing to me, but in these days of government spending by billions, I tried to get some idea. There have been a billion minutes since the birth of Christ and only a billion minutes, and so I envisaged a figure starting at that time and every minute, day and night, right up through the Middle Ages until the present day, throwing $2½ on to the ground. That fantastic sum of money was spent by the Socialists in 18 months on the National Health Service. Where did it come from? Well, of course, from the taxpayer of Great Britain and he will go on finding the money on a scale which the Socialists themselves estimate will rise for the next 30 years.

We have, I am glad to say, begun to put a stop to all this and at last year's election we turned out nearly 100 of these Fabians, and in God's good time we shall get rid of them completely. But Socialism is like polio; you do not know when you catch the disease; by the time the diagnosis is made it is too late to avoid it, and if and when you recover, you have a lame leg. The changes of Socialism are irreversible.

Now I do not intend to commit the impertinence of advising any Americans on what they should do, and if America wants to adopt Socialism, much as I regret it, it is no business of mine; but perhaps I may be persuaded to say this, that if America does not want Socialism, the time is very short which she has to acquaint herself with the tactics of the Socialists and what she may expect to suffer if she admits the first and apparently innocuous step.

The travails of my own great nation are there for you to see. You speak our language and are our friends. You have an unexampled opportunity to make your decision on facts.

Electric Industry Ready for Defense Emergency

In Even Better Shape Than At Beginning of World War II—Generating Capability Nearly Double That of 1941

THE ELECTRIC industry is in even better shape to meet the present defense emergency than it was when the nation began to get ready for World War II, L. V. Sutton, President of the Edison Electric Institute, has reported to W. Stuart Symington, Chairman of the National Security Resources Board.

There will be plenty of power to meet the needs of the country, Mr. Sutton said, in his letter to the NSRB Chairman, provided that "no government limitations are imposed which would prevent the completion of the construction program now under way."

This year, Mr. Sutton told Mr. Symington, the electric industry will have a total generating capability of 67½ million kilowatts, which is nearly double what it had at the beginning of 1941. The current utility construction program will add another 12 million kilowatts of generating capacity by the end of 1952. In addition, the country's electricity production resources include 13½ million kilowatts of generating capacity in major industrial plants.

More *New* Generating Equipment

Nearly four times as much new generating equipment is on the power lines today, as there was in 1940, Mr. Sutton noted. As of the present, he explained, 30 million kilowatts of the industry's generating equipment is less than 10 years old, with all the advantages of economy of operation and relative freedom from mechanical breakdown possessed by modern machinery. In 1940 only 8 million kilowatts had been installed within the preceding 10 years.

"A vast reservoir of surplus electric power is ready to be tapped for any possible needs," he added. "This year reserves total 9 million kilowatts (12 million horsepower). They can, if necessary, generate more than 50 billion kilowatthours a year. A greater use of operating capacity through second and third shift operation of industry would make available at least another 50 billion kilowatthours a year.

One-Third Increase in Available Energy

"This total of more than 100 billion kilowatthours a year would represent an increase of one-third in presently available energy from the resource we now have, and would enable us to nearly double our present use of electricity in major industries."

In this connection, however, Mr. Sutton observed that the great reservoirs of unemployed and the idle industrial capacity that existed in 1941 are not available today. Instead, men and supplies for defense work must be diverted from non-essential industries. This shift will tend to reduce the demand for power for such purposes.

Teamwork in Creative Power Sales Engineering

By J. H. Coates
Ebasco Services Incorporated, New York, N. Y.

An address presented before the 51st Annual Convention of the New York Association of Electrical Contractors and Dealers, Saranac Inn, New York, July 5, 1950

THE FACT that the New York State Association of Electrical Contractors & Dealers has set aside a day in its deliberations at the 51st Annual Convention as Utility Day certainly shows its appreciation of the practical benefits that can come from cooperative efforts.

Each year we see more examples of cooperation between these segments of the electrical industry and, in the industrial end of the business, each year opens up greater opportunities for further development of this business of working together.

Economists tell us that the plans of industry for further plant expansion and modernization are on the increase again —that new orders for machine tools in May were 15 per cent above the booming 1945-47 average. A year ago this index was 37 per cent below the 1945-47 average. The ratio of unfilled orders to shipments at the end of May rose to better than 5 to 1.

Sales Record Boom

Utility sales have attested the vitality of the boom for some time. Increases over corresponding months of a year ago averaged about 5 per cent and have crept up gradually to 12 per cent in June.

Contrary to some recent articles, with Washington date lines, in the newspapers, utility capacity reserves are in good shape. The companies are really out selling. That means new business for them and for you—their allies.

"Business Promotion Through Salesmanship"—that is the theme of your convention and it is the very keystone on which successful contractor-utility cooperation is built. Let me assure you that in the utility companies of the country more and more emphasis is being placed on the sales angle of the job of the 2,000 utility men who are in constant contact with their industrial customers. Their titles may vary from company to company but their job descriptions all add up to intelligent and creative *sales* engineering.

In looking over the January issue of *Qualified Contractor,* I came across a little paragraph by Harry Simmons on his page of "Sales Angles" which seems to point up the story I would like to bring you today. He said, "Transform competitive bidding into constructive *selling!* Get on the job long before the bidding starts—and start *selling* long before your competitor can get on the job."

Ambitious Soothsayer

This causes me to ask you a question: "How would you like to know of every proposed change in electrical wiring or equipment in your city before it got to the actual planning stage?" I am sure you would, and I hope to tell you how you can. To appear as an even more ambitious soothsayer, I also hope to be able to tell you how you can find out about some electrical changes even before they appear in the brain of the ultimate owner of the device or wiring.

How can you? By proving, to your utility industrial sales department, that you can be counted on to help them sell the various electrical modernization plans and the various new electrical applications that they are constantly promoting in their everyday sales calls. By demonstrating to them that, when they make a lighting layout which will bring the customer the 50 footcandles which he needs, you will *not* sell it *down* to a 10 footcandle job so that you can get in a lower bid! By working with them on preliminary estimates and by calling on them for help when your selling job is getting tough.

Blunt Words

In very blunt words, this is the way you can build up your relationships with your utility so that their entire power sales staff will be working for you. I would like to prove to you that this is not just idealistic thinking dreamed up in a skyscraper office in New York nor induced by the heady atmosphere of the Adirondacks.

Let me tell you a few stories of this kind of relationship and the results obtained. These stories were gleaned from my talks with utility power salespeople from all parts of the country. They were selected not because they were the largest or most spectacular examples but because each had a little different approach to this "cooperation" we're talking about—some different idea of how a contractor and his power sales friend worked together to do a selling job.

First, I would like to tell you about a cooperative venture sponsored last Fall by an electrical league in a Pennsylvania city. This Planned Lighting program involved all the elements of good selling: direct sales calls; publicity; direct mail pieces; lighting layouts, etc. Twenty-six lighting equipment manufacturers cooperated, three lamp companies, 21 wholesalers with 80 salesmen, 800 contractors and 110 utility personnel got out and SOLD.

Results

The results? In three months time, 1,583 jobs were sold, involving 42,916 fixtures costing $1,159,000. In addition to the cost of the fixtures themselves, you can figure about how much the contractors got for wiring, controls, etc. The utility got about $250,000 in new revenue. A whole book could be written about this cooperative program but let us leave it to review some other jobs to get a broader picture.

Recently, a New Jersey utility power salesman was working with a railroad shop trying to convince them to shut down their power plant. The customer asked the power man to obtain a contractor who would be willing to give rough estimates on a new substation and new distribution facilities and motor wiring. One contractor agreed to do this, and to make a long story short he got the complete job amounting to $60,000. The increased revenue to the power company was about $58,000.

A pharmaceutical manufacturer in the same state modernized his overloaded internal plant wiring system, installed two 1,000-kva transformers and

shut down his private plant. A $25,000 job for the contractor, and $10,000 new revenue for the utility.

Two New Jersey office buildings operated their own D-C power plants. To convert these buildings to utility service required detailed analysis of costs for the conversion of hundreds of business machine motors and required a great deal of time on the part of the contractor without much assurance of getting the job. The way in which the detailed estimates were prepared and the cooperative sales efforts of contractor and power salesman sold both jobs. $70,000 for the contractor and $30,000 of new revenue for the utility.

Reduced Rejects

An aluminum foundry in eastern Pennsylvania was sold on the idea of an induction melting furnace by the combined efforts of the utility, the manufacturer and the contractor. This new furnace reduced rejects on pressure castings from 50 per cent to only 2 per cent on one specific job. In addition to the furnace wiring the contractor got the job of installing service, breakers, cubicle, bus duct distribution and other wiring changes.

A spark plug manufacturer in the same area of Pennsylvania could not meet Navy specifications because of trouble with his crimping operations. The power salesman made specific recommendations for electric heat and the customer's production department came up with ideas for combining 17 operations into one. The new equipment enables them to make a product that exceeds specified tests by 150 per cent. The contractor got a $1,500 job; the utility $1,000 in new revenue.

Electric Heating Reduces Cost

This same Pennsylvania utility reports a cooperative selling job by their power man and a local contractor on an electric tar boiler in an Amesite plant. This electrification enabled the customer to shut down an expensive steam boiler which reduced the cost of heating Amesite from 40¢ to 3½¢ per ton. Contractor's fee $3,000; new revenue to the utility $2,000.

Now I would like to jump down to the Southeast and show how one utility's efforts brought some real business to a contractor. For months, this utility worked to get a large rayon weaving mill to move to its area. This is one utility function that is not often given the publicity it deserves.

How important industrial development is to a community may be better appreciated when one visualizes the increased payrolls, taxes and other income that is brought in. How important this one job was to the electrical contractor can be expressed in very significant terms—nearly half a million dollars. That was quite a job! Isn't this cooperation worth while?

You may ask, "How can a contractor do anything about territorial development?" Let's skip back to a western Pennsylvania territory for an example. An asphalt tile manufacturer was being served by the utility through a substation located at one end and to one side of the plant. To provide for expansion, the customer bought a vacant lot adjacent to the plant on the side opposite from the substation. At first it seemed like the natural thing to enlarge the existing substation and serve the new load as well as the existing load from that substation. The customer, however, thought that the cost of a distribution system to do this was excessive. The customer also operated a plant in another state and, for a time, it looked as though Pennsylvania might lose this industrial expansion by having the additional work done in the out-of-state plant.

Relocate Load Center

The contractor's representative and the utility man studied the situation carefully and worked out a plan whereby a new load center would be established in the center of the combined plant. The utility cooperated further by relocating its service entrance and substation and the cost to the customer was reduced very substantially—to a point where the plant expansion was feasible. The cooperating contractor got a wiring job of approximately $15,000 and the utility increased its annual revenue by $25,000.

Speaking of unit substations, the southern utility mentioned previously reports swell cooperation from local contractors selling unit load centers and lighting modernization. Getting unit substations accepted has been a tough selling job but they are now getting real acceptance by customers of 2,000 kw and up—especially where expansion is at all likely in the future.

An Ohio foundry purchased an abandoned building and found the wiring and lighting systems in bad shape. A local contractor and a utility lighting man were called in with the result that the customer now has a modern wiring and lighting system. The contractor's reward $30,000—new revenue to the utility $5,000. This same Ohio utility reports that some contractors are still attempting to sell down a job rather than using the same amount of energy to sell up a good job which would mean more income to them and greater benefit to the customer.

Cooperative Lighting Campaign

An Indiana utility reports a new cooperative campaign with their contractors. Each lighting layout that the Company's lighting engineers prepare is accompanied by a contractor's bid. The idea is that the whole job can be sold as a package—the idea of adequate lighting—the equipment to do the job, and the cost of the job.

A Louisiana utility reports on the shut-down of two diesel plants—one ice plant and one rice mill. In both cases, the sales negotiations covered considerable time but were well worth while to both the utility and the cooperating contractor. The electrical work in the ice plant amounted to $16,000 with increased utility revenue of $10,000. In the rice mill, $15,000 to the contractor and $6,000 to the utility.

A Georgia utility reports that it held a meeting of its cooperating contractors and showed them the enlarged market for capacitors in their service area brought about through the introduction of a new industrial power rate that incorporated power factor improvement features. The company agreed to make the necessary tests to determine the capacity required for power factor correction and furnished the information to the dealers and contractors. Two hundred and sixty installations were made varying from 100 kva to 2,000 kva at approximately $10 per kva.

Contractor Gets Cooperation

Let's go back to Ohio for a minute. This job really illustrates just how this "cooperation" works. A large heavy machinery manufacturer had purchased a local lighting fixture for attachment to some of his machine tools. An electrical contractor was in the plant doing some work on the switchboard and the plant manager had him install a few of the lights on several machines. The ma-

chine operators were not pleased. They complained that they could not see any better than with the old lights.

The contractor was very anxious to please the customer because this was his first job with this concern. He got hold of the utility's industrial lighting specialist and, between the two of them, they pointed out to the plant management that the local lights were not doing the job and that this was not the proper approach to good lighting. The plant had some 300 RLM fixtures for general lighting and they were inadequately maintained and lamped.

Entire Plant Relighted

The utility man studied the job and laid out an entire overhead lighting installation for general light on a level of 30 footcandles. The contractor helped by installing a sample bay installation. After this was installed they brought in the plant management: foremen, shop superintendents, and general manager. They passed on it and ordered that a complete installation be made for that department. Within the next two years, the entire plant was relighted.

The results:

1. The customer was highly pleased with the efficient production type of lighting installation.
2. The electrical contractor got a job amounting to about $72,000 over a two-year period.
3. The contractor "got in" the plant and has had all of their work ever since.
4. The utility obtained 600 kw of additional load representing about $24,000 revenue.

I would like to conclude my remarks today by going from the specific to the more general ways in which contractor-utility cooperation pays off for both parties.

2000 Industrial Salesmen

The utilities of this country employ approximately 2,000 industrial salesmen who are trained in both application engineering and sales. These men's sales efforts are aimed directly at convincing every industrial plant owner that complete electric modernization is his surest avenue to profitable production. His direct sales efforts are supplemented by intensive advertising both locally prepared and syndicated on a national basis. Each month, the utilities of the country distribute *Electrified Industry* free of charge to 34,000 of their customers. This is a pictorial "Life" type of magazine which shows how electricity is solving the problems of other industries.

Utilities all over the country are constantly bringing their story of electrical modernization (which is your story too) to their customers through national promotional efforts of their own and the manufacturers. The "More Power to America" program of General Electric, Anaconda's "Power Up" program, the GE "Lighting Clinics" and the "Productive Power Show" of Westinghouse are but four examples.

Through its national association, the Edison Electric Institute, the utility industry develops national promotional campaigns such as the Planned Lighting program which is bringing a new concept to industry of what lighting can do as a production tool. Through the Institute's committees, the best thinking and the best methods developed by individual companies are made available to all members. And let me assure you that the cooperation of our allies is not overlooked in the committee work.

The utilities work closely with the architects, consulting engineers, manufacturers, jobbers, distributors and dealers as well as contractors because they are all part of the team. It is only by such teamwork that we can get on with this tremendous never-ending job—the job of electrifying America.

Many other examples could be cited of the ways in which utilities are spreading this gospel of industrial electrification but the keystone is the individual power man of the individual utility company. I invite you to get better acquainted with him. He is not only selling for his company but he is selling for you!

In recent years, utilities in various parts of the country have been hard pressed by competition—unfair competition from nontaxpaying, nonregulated government groups. The battle is tough and we are fighting it in spite of the

(*Continued on page* 335)

Rodey to Conduct Advanced Course in Public Utility Accounting at N.Y.U.

AN advanced course in Public Utility Accounting will be given this fall by the Department of Public Utilities, School of Commerce, Accounts and Finance of New York University. The course, which will begin Sept. 20, will be conducted on Wednesdays from 8 to 10 p. m. by Dr. Bernard S. Rodey, Jr.

The course will deal with problems and practices, particularly in electric and gas utility accounting, and on the procedures developed to supply the information required by management, stockholders, employees and other corporate interests. The course will follow the outline of a forthcoming book by Dr. J. Rhoads Foster and Dr. Rodey to be published by Prentice-Hall, Inc., about Feb. 15, 1951.

Lectures will continue through next June and cover the following subjects:

- Public Utilities and Accountancy
- Utility Regulation and Accounting
- Uniform Systems of Accounts
- Books and Records
- Cash and Cash Transactions
- Accounts Payable Routine
- Determination of Periodic Income
- Balance Sheet Accounts
- Capital and Liabilities
- Utility Plant
- Work Order Systems
- Indirect (Overhead) Construction Costs
- Continuing Property Records
- Original Cost
- Depreciation and Amortization—Definitions and Principles
- Depreciation and Amortization—Accounts, Methods and Techniques
- Materials and Supplies
- Labor
- Transportation
- Taxes
- Operating Expenses
- Customers' Accounting—Organization and Procedures
- Customers' Accounting—Bookkeeping Procedures
- Reports and Statements
- Consolidations
- Budgetary Control
- Audits, Controls and Departmental Organization
- Capital Stock Accounting
- Preservation and Destruction of Records

Dr. Rodey, formerly Associate Controller of Consolidated Edison Company of New York, Inc., is at present Assistant Secretary, and Manager of the Tax Department of the company.

Current Problems and Answers to be Shared at Fourth Industrial Relations Conference

By S. F. Leahy
The Detroit Edison Company
Chairman, Industrial Relations Committee, EEI

THE world situation today emphasizes the urgent need for finding better ways for human beings to get along with each other. Industrial relations in American industry, including electric utilities, is but a part of this larger problem. Some industrial leaders believe that, unless we can better solve our human relations problems in industry, our democratic way of life is doomed. So, search for improvement in industrial relations continues to hold a high priority in the thinking of top line executives as well as specialists.

Stimulate Exchange of Ideas

To provide a time and place for an exchange of ideas between industrial relations specialists within our industry, the EEI Industrial Relations Committee has again arranged for a Fall Industrial Relations Conference. It will be held in Cincinnati, Nov. 13-15. The dates, subjects, and leaders are given elsewhere on this page. The subjects are those which were designated as most important by the Industrial Relations Committee and correspondents.

The leadership and the membership of the Conference are purposely restricted to those in our own industry since one of the main objectives of the Conference is to have our personnel people know each other more intimately. Further, if a particular industrial relations policy or practice is working in one of our companies, it is likely that it can be helpful to another because most of us have the same basic objectives and problems.

The general design of the full-day Conference on Nov. 13 and 14 is as follows: In the morning the several divisions of the main subject will be covered by the announced speakers in brief ten-minute presentations. There will then be a short general discussion of the main subject by the Panel. Following this, a new method of orderly full-audience participation will be used. This method is variously known as

(*Continued on page* 355)

November 13, 1950

EMPLOYEE COMMUNICATIONS

F. E. VERDIN, *Chairman,* The Cleveland Electric Illuminating Co.

Morning

"A Program for All Employees"—W. E. WOOD, Virginia Electric & Power Co.
"A Program for Rank and File Employees"—C. B. BOULET, Wisconsin Public Service Co.
"A Program for Supervisory Employees"—H. K. BRECKENRIDGE, West Penn Power Co.
"Merits and Demerits of Certain Subject Matters"—F. R. RAUSCH, The Cincinnati Gas & Electric Co.

Afternoon

Special sub-topics

Evening

Dinner Speaker—ALLEN H. MOGENSEN, Consultant
Work Simplification
W. C. BECKJORD, *President,* The Cincinnati Gas & Electric Co.

November 14, 1950

UNION NEGOTIATIONS

E. J. BRILL, *Chairman,* Pennsylvania Power & Light Co.

Morning

"Preparation for Union Negotiations"—R. G. KENYON, Southern California Edison Co.
"Negotiation of Pensions"—J. C. ARNELL, Consolidated Edison Co. of New York, Inc.
"Wage Negotiations"—H. B. TYREE, The Detroit Edison Co.
"Arbitration of the Provisions of the New Contract"—W. F. MOSES, New Jersey Power & Light Co.
"Negotiation of Job Evaluation Program"—H. S. RICHMOND, Consumers Power Co.

Afternoon

Special sub-topics

November 15, 1950

IMPROVED SELECTION METHODS

R. KUCHLER, *Chairman,* Wisconsin Electric Power Co.

Morning—(Concurrent Sessions)

"Selection of Supervisors"—DR. G. N. WORBOIS, The Detroit Edison Co.
"Testing"—R. KUCHLER, Wisconsin Electric Power Co.
"Technique of Interviews"—M. B. MATHIS, Union Electric Co. of Missouri

SUPERVISOR AND EXECUTIVE TRAINING

B. K. SWARTZ, *Chairman,* The Detroit Edison Co.

"Inventory and Appraisal of Executives"—B. K. SWARTZ, The Detroit Edison Co.
"Cadet Training"—E. J. THIMME, Public Service Electric & Gas Co.
"Supervisory Training"—DR. M. S. VITELES, Philadelphia Electric Co.

A Report on
Heat Storage for Heat Pumps

PREPARED BY THE JOINT AEIC-EEI HEAT PUMP COMMITTEE

THE heat pump has received a considerable amount of attention during the past several years because of the many desirable features which it possesses and the possibilities it offers for year-round air conditioning in the residential and commercial field.

Manufacturers, research organizations, and the electric utilities have been devoting a great deal of attention and effort to the heat pump in order to make available useful application and performance information, new and improved equipment operating with maximum efficiency, and to encourage actual installations. Several manufacturers are at the present time directing their activities toward the design of a self-contained package unit which will be adaptable to quantity production.

Investigation of chemical salts as heat storage media for heat pump systems was included in the 1950 Program of the Joint AEIC-EEI Heat Pump Committee.

Although chemicals have been used for several years for storing heat in solar heating systems, the possibility of using such a storage medium in conjunction with a heat pump system has not been investigated.

This article is a preliminary report on the progress of this investigation.

Heat Storage Systems Are Economical

The Joint AEIC-EEI Heat Pump Committee early recognized the possibility of decreasing the required size of a heat pump system, and finally the operating cost of such a system, if an economical method of storing heat, for periods of peak demand, could be obtained.

Water storage systems for supplementing daily output to meet peak demand have been used to a very limited extent for residential comfort heating and cooling systems to date. The principal objection to this method is the large space needed for the storage tanks. Storage systems using the heat of fusion principle are attracting attention because of the possibilities for reducing the size of the storage volume to approximately one-fourth that required for water.

Fig. 1 is a flow diagram of a heat pump system using storage. The air from the conditioned space passes over the water coils in the storage circuit, then over the refrigerant conditioner coils so that the maximum heating effect can be obtained from the circulating water.

Fig. 2 gives the heat loss of a residence and the heating capacity of a 3 and 5 horsepower heat pump unit at various outdoor temperatures. For this particular residence, the 3 horsepower unit, when using air as the heat source, will satisfy the heat loss at an outdoor temperature of 20.5 F. At outdoor temperatures above this point the heat pump has excess capacity as represented by area "A," and below this point insufficient capacity as represented by area "B." The objective is to store sufficient heat when the outdoor temperature is above the balance point to satisfy the additional requirements below the balance point.

Sizing the Storage Tank

The first step in the sizing of the storage tank is to select the temperature cycle to be used by making a study of the weather data. As an illustration, Fig. 3 gives the minimum-maximum temperature variation during the 1935-1936 heating season for Roanoke, Va. This period is one of the coldest winters on record for the area and perhaps is too severe to be used as a basis for design. As the example will use this

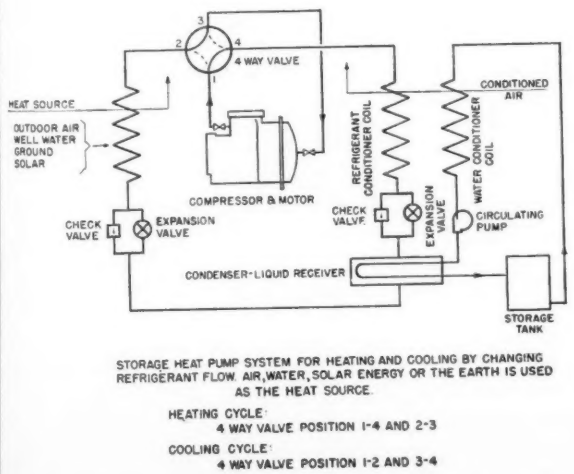


Fig. 1—Flow Diagram of a Heat Pump System Using Storage

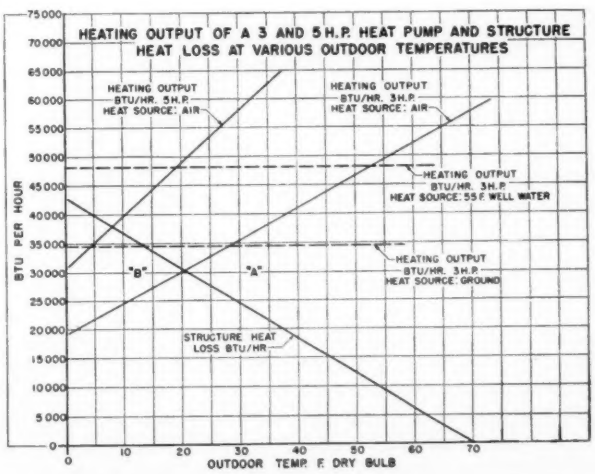

HEATING OUTPUT OF A 3 AND 5 H.P. HEAT PUMP AND STRUCTURE HEAT LOSS AT VARIOUS OUTDOOR TEMPERATURES
HEATING OUTPUT BTU/HR. 5H.P. HEAT SOURCE: AIR
HEATING OUTPUT BTU/HR. 3H.P. HEAT SOURCE: AIR
HEATING OUTPUT BTU/HR. 3H.P. HEAT SOURCE: 55 F. WELL WATER
HEATING OUTPUT BTU/HR. 3H.P. HEAT SOURCE: GROUND
STRUCTURE HEAT LOSS BTU/HR
"A"
"B"
BTU PER HOUR
OUTDOOR TEMP. F. DRY BULB

Fig. 2—Graph of Heat Loss of a Residence, and Heating Capacity of 3 and 5 Hp Heat Pump Units

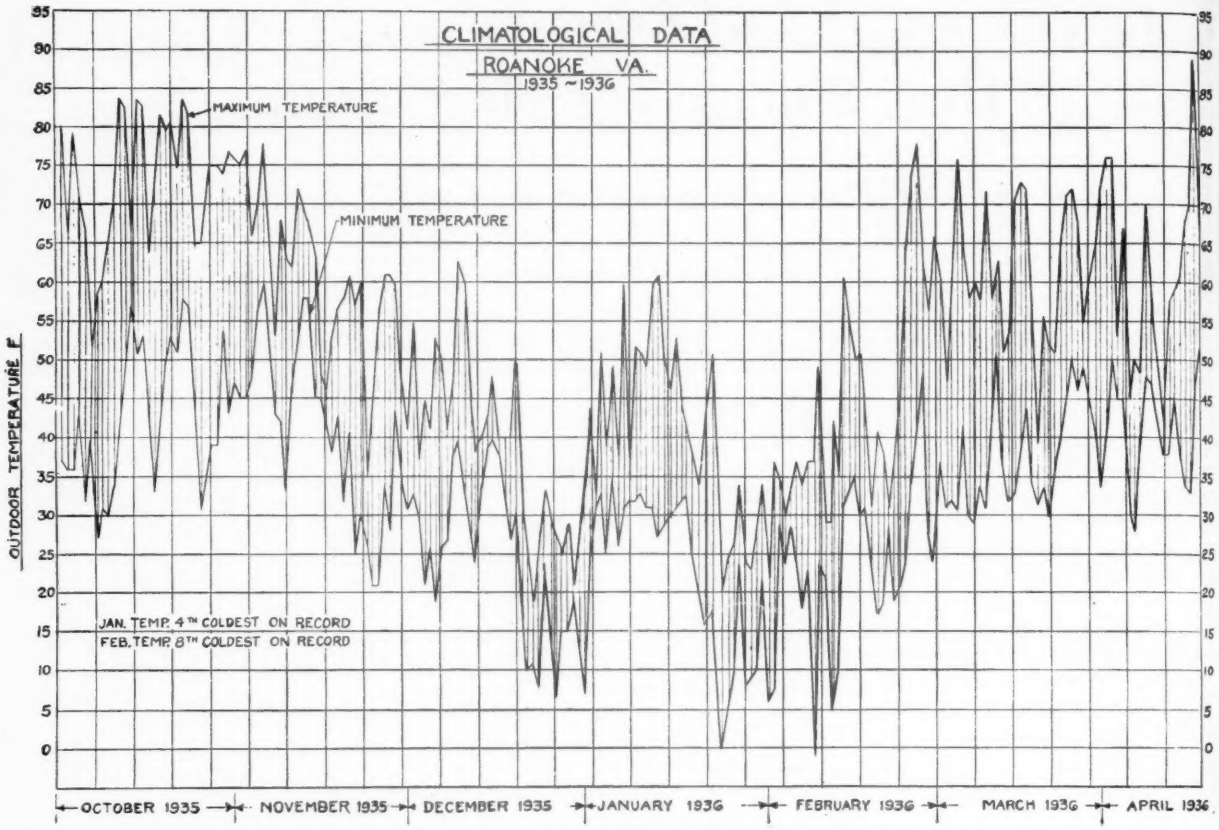


Fig. 3—Graph of Minimum-Maximum Temperature Variation During the 1935-1936 Heating Season For Roanoke, Va.

data, the equipment selected will consequently be on the conservative side.

From a study of Fig. 3, it can be concluded that, if the system has sufficient capacity to satisfy the three days of January 23, 24 and 25, the requirements for all other periods can easily be met. For these three days 487,000 Btu are required in addition to the heating effect furnished by the 3 horsepower unit using air as the heat source. If a chemical salt is used as the heat storage medium, a 375 to 450-gallon tank would be required, depending on the salt, and approximately a 1500-gallon tank if water is used.

Conservative Estimates

It will probably be found from actual experience that a much smaller tank could be safely used than that determined, because the method of selection used was based on outdoor temperatures only, and it was assumed that the average indoor temperature would be 70 F. The thermal flywheel action of the structure, the heat gain from the lights, cooking, occupants, and solar energy were not included.

The extent to which these factors will influence the estimated additional heating requirements is a matter of individual judgment. Experience with such installations indicates that the heating requirements at extreme temperatures will be lower than that obtained by the conventional heat loss calculation method. Just how much lower depends on such factors as size of structure, type of construction, size and type of windows, and amount of insulation.

Fig. 2 indicates that a 3-horsepower unit with storage or a 5-horsepower unit without storage will satisfy the heating requirements of this particular residence. The most practical and satisfactory selection will depend on the relative merits of the two systems.

It appears that the 3-horsepower system with storage can be justified in place of the 5-horsepower without storage on the basis of first cost in many areas. In addition to a possible saving in first cost, the storage system has many inherent advantages and will probably give a higher over-all operating efficiency.

Heat storage using the heat of fusion principle has been used in solar heating installations; however, this type of heat storage in conjunction with a heat pump system is relatively new.

In order to determine the latent heat of fusion and other characteristics of a chemical which may be used as a heat storage medium, laboratory tests were conducted for the Joint AEIC-EEI Heat Pump Committee at Massachusetts Institute of Technology. In these tests a commercial grade of sodium phosphate dibasic ($Na_2HPO_4 .12 H_2O$) was used. Copper spheres and stainless steel cylinders of various sizes were used as containers to determine if the size and shape of the container would affect the characteristics of the chemical.

Laboratory Tests

Figs. 4, 5, and 6 show the results of the laboratory tests for four different containers and the two cycles, melting and freezing. It will be noticed that the spherical containers undercooled on the freezing cycle before crystallization. There was no difficulty encountered in making the phosphate solidify or melt in the tests made on the smaller diam-

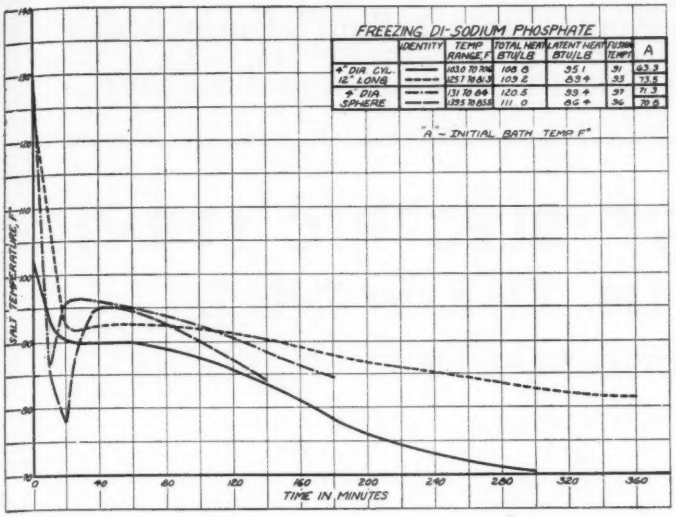


Fig. 4—Time-Temperature Graph of Di-Sodium Phosphate Freezing Cycle Using 4-In. Diam Cylinder, 12-In. Long and 4-In. Diam. Sphere

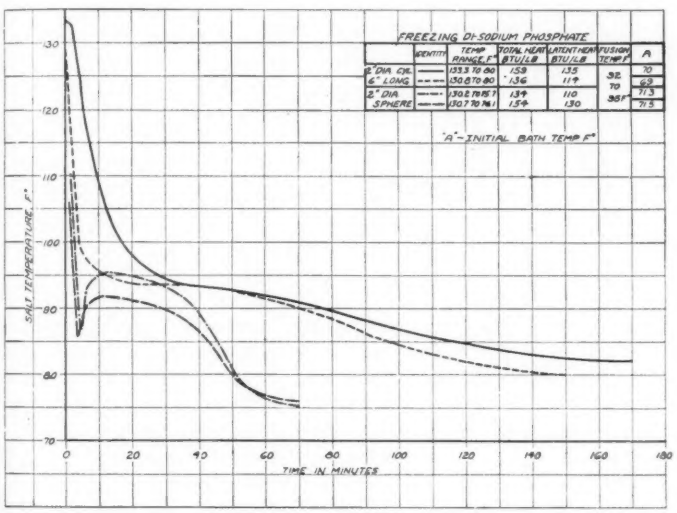


Fig. 5—Time-Temperature Graph of Di-Sodium Phosphate Freezing Cycle Using 2-In. Diam. Cylinder, 6-In. Long and 2-In. Diam. Sphere

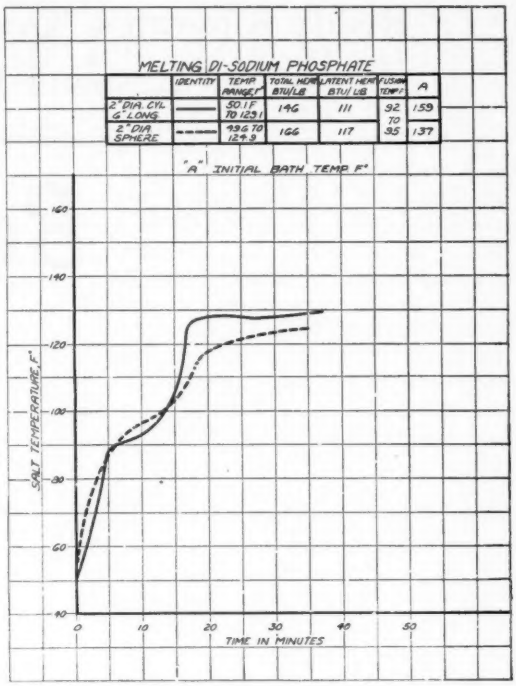


Fig. 6—Time-Temperature Graph of Di-Sodium Phosphate Melting Cycle Using 2-In. Diam. Cylinder, 6-In. Long and 2-In. Diam. Sphere

eter containers; however, in one freezing test on the larger sphere, the degree of undercooling was so large that crystallization did not take place.

Results of the tests indicate that higher total and latent heat contents, for this particular chemical, will be obtained by using the smaller diameter containers. This is an encouraging indication because the smaller containers can be produced by standard production methods used at present, and the initial fabrication cost held to a minimum.

The preliminary test results indicate that this method of heat storage offers excellent possibilities, but additional investigation and research are necessary. The most satisfactory size and shape of container must be selected, as well as determining whether this particular chemical is the most suitable of those available.

Experimental Installation

A 3-horsepower experimental heat pump installation, using chemical heat storage, will shortly be in operation in a Roanoke, Va., residence. The storage system will consist of a 275-gallon tank housing approximately 4700 containers, 2⅛ in. diameter by 2⅞ in. long, which are filled with sodium phosphate dibasic 12 H_2O. Water will be circulated over the containers and through the condenser-liquid receiver and water conditioner coil in a closed circuit. Small containers were selected in order to obtain a large exposed surface per unit volume and because of their reasonable cost due to quantity production methods having already been developed.

Complete records will be maintained on the above experimental installation and results published periodically through the Joint Committee.

Teamwork in Creative Power Sales Engineering

(*Continued from page* 331)

fact that our opponents are also the ones who make the rules.

When the umpire starts swinging on the side of your opponent you really have a fight on your hands. But we are convinced that, if America can be shown the true facts, we will win. May I ask that you do your part by helping to make the fight a little fairer—by helping us to tell the true story of private enterprise and individual initiative? This is the way America has grown and progressed to its present strength and place in world affairs. Free enterprise is its only hope for the future.

Reddy Kilowatt's "Grass Roots Impact Plan" Launched; Companies Respond Enthusiastically to New Program

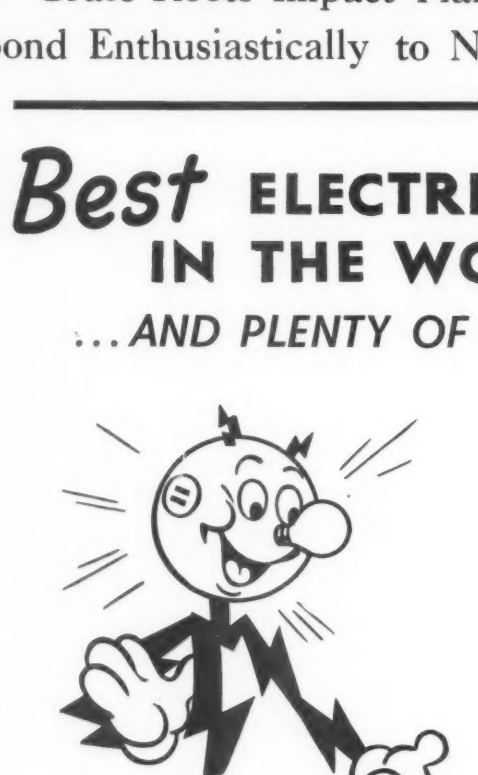
A "FLEXIBLE, long-range plan for well-integrated public relations at the Grass Roots," more concisely known as GRIP and featuring Reddy Kilowatt as its prime mover, has just been launched by Reddy's creator, Ashton B. Collins, for the benefit of the 240 companies who are licensed to use the widely recognized symbol of electric service in their advertising and general promotion.

GRIP stands for "Grass Roots Impact Plan," and, according to Mr. Collins, it is designed "to blaze anew the tremendous values of electric service under free enterprise," and to dramatize to the public through Reddy Kilowatt the ability of the electric companies to do their job—whether our way of life is threatened by Communist aggression from without or attack from various "isms" within.

The program has been greeted enthusiastically. "Company response has been four or five times greater on GRIP than on any other Reddy Kilowatt program brought out so far," Mr. Collins said. GRIP will be off to a running start this month, and the "big push" is scheduled for 1951 and 1952.

Reddy Kilowatt is a familiar figure in all but two states, Nebraska and Tennessee, where governmental agencies have taken over electricity supply. It is felt, therefore, that the new program can gain considerable nationwide effect, if the subscribing companies get underway with GRIP at about the same date. Mr. Collins emphasized, however, that the individual companies would begin at any time they saw fit, because the program is basically local and flexible and must be adapted to suit local conditions.

As a means of intensifying Reddy Kilowatt's value in both sales promotion and public relations, GRIP presents him in the role of "Servant of the Century," whose wages are only about "3¢ an hour." To strengthen this concept, three more slogans have been introduced—"Reddy Kilowatt Power," "Reddy Kilowatt—the Mighty Atom in Person," and "Let Reddy Do It." A wide variety of GRIP materials, including newspaper advertisements, billboard posters, display panels and stickers, make use of these phrases to bring home the fact that electric companies provide "the best electric service in the world." Particular emphasis is laid on "Reddy Kilowatt Power" as a means of identifying the kind of electricity supplied by electric companies, which "8 out of 10 people in this country buy."



Keylines for Reddy Kilowatt's "Grass Roots Impact Plan" are the slogans reproduced in this advertisement forming part of the new campaign.

Inasmuch as GRIP had been developed before the Korean war broke out, special bulletins to the companies have been issued with suggested changes to fit the present war picture.

Additional advertisements present Reddy on the subject of government in business, and there is soon to appear a further series of advertisements and promotional material designated "Reddy for Anything," for use in adapting GRIP to the situation brought about by the Korean conflict.

As a means of getting employee participation in the GRIP program, "The Reddy Kilowatt Answer Plan" is offered, outlining two articles on Reddy Kilowatt and GRIP for employee magazines and suggesting two contests to arouse employee interest and secure better understanding of industry and company problems. To be conducted by the individual companies, one competition would be of the essay type, while the other would require that its entrants simplify into "the language of Reddy Kilowatt" a more complicated statement on a particular problem. It is felt that such contests would not only result in better employee comprehension but would also produce material for other GRIP uses.

Mr. Collins made clear that the material developed thus far for GRIP marks only the opening phase of what is to be "the first flexible long-range advertising and public relations plan of its type in the industry—a grass roots plan with full local autonomy." In the brief period since the initial details of GRIP were supplied to the companies using Reddy Kilowatt, "more than forty organizations have definitely announced they would adopt the new program either in its entirety, or in part, as local situations indicated." With an impressive record of electric company expressions of approval of the new plan, Mr. Collins feels sure that "GRIP is going to roll."

Degree of Standardization of Electric Water Heating Practices— 1950 Compared with 1948

A Report of a Survey Conducted by the EEI Electric Water Heating Committee,
J. R. Broderick, *Chairman*

THE EEI Electric Water Heating Committee has again made a survey of the degree of standardization of electric water heating equipment and practices within the electric utility industry, with the purpose of comparing survey summary results of Jan. 1, 1950, with results obtained from the Committee's Jan. 1, 1948, survey.

Questionnaires filled and returned totaled 102 as compared to 103 received in 1948 which again illustrates the continuing high interest in this subject. The 1950 survey shows a total of 20,044,351 residential and farm customers being served by the reporting companies with an overall water heater saturation of 7.4 per cent as compared to a total of 17,553,837 with a saturation of 7.0 per cent two years previous. Again practically all of the reporting companies had gas competition (96 per cent). Eighty-nine companies or 87.0 per cent of those reporting are now actively promoting water heating while the 1948 questionnaire showed 83 per cent so engaged.

Progress in Standardization

In regard to standardization, some slight progress has been made in the use of NEMA standard wattages, voltages, thermostat settings and ratios of wattage to tank capacity. Eighty-eight companies report they are using standard wattages, a gain of three; 96 use standard voltages, a gain of four; 84 use standard thermostat settings and differentials, a gain of two; and 63 use standard ratios of wattage to tank capacity, a gain of only one. In these particulars it must be emphasized progress made toward standardizations are not too encouraging. However, again those companies not following the NEMA standards showed only minor differences.

Ninety-four respondents again stated that heaters now being furnished by manufacturers were acceptable as to miscellaneous provisions, such as openings, tank sizes, shapes, pipe connections, heat traps, etc. As in the 1948 survey this represents 92 per cent of the reporting companies.

Water Heating Service Control

As in 1948 the important area of difference is in the matter of control. Of the 102 reporting companies reporting this year, 35 stated they employed uncontrolled service, 66 employed controlled service and one did not state its policy. The earlier survey with 103 reporting companies showed 42 offering uncontrolled service, 60 offering controlled service and one offered both types. A comparison of the two surveys might indicate a tendency toward controlled water heating service as approximately the same companies reported in 1950 that had reported in 1948.

In reference to the number of hours in the control period the latest survey shows no less than 19 different variations and no more than 10 companies using one period. The results here are again about the same as obtained in 1948 when 17 different variations were recorded with only nine companies using a given period of control. The replies varied from 3 hours to 20 hours with 35 listing controlled periods of 10 hours or less and 15 using controlled periods of more than 10 hours. There seems to be no trend in changing the length of the controlled period as the 1948 survey shows approximately the same results.

Conformity to NEMA Standards

It is again emphasized that as a result of this wide variation in control practices and miscellaneous local considerations, the degree of conformity to NEMA standard ratios of wattage to tank capacity is not in line with conformity to other NEMA standards.

An important area of difference is in the service wiring of heaters as it was in the survey of two years ago. Thirty-two companies specify two-wire circuits to each unit, 41 want both units supplied by a common two-wire circuit, 15 state both units must be supplied by a three-wire circuit, three use both the first and second method, one states it is optional, and 10 did not state their company policy. Here again we find no tendency toward standardization and definitely no improvement over 1948.

In summarizing and as reported two years ago, water heating is still to a large extent tailor-made to local conditions specifically in reference to methods of control and charging hours. Notwithstanding wide variations in fundamental operating characteristics, some further progress has been made in adoption of NEMA standard wattages, voltages, thermostat settings.

Standardization of Wiring

Progress toward standardization of wiring of heaters and ratios of wattage to tank capacity is a question. Little or no gains are apparent through comparison of the latest survey with the one two years previous. It is fairly well established that very little can be done to improve standardization in these two respects due to wide variations in basic operating characteristics of the electric utilities.

It might be appropriate to mention here that an American Standard for Household Automatic Electric Storage Type Water Heaters has recently been approved under the procedure of the American Standards Association. Now that there definitely is an American

Standard, it would be desirable to have the cooperation of all sales people, engineers and executives in trying to make this Standard operative throughout all areas. These Standards are subject to review periodically and if it becomes desirable, as this questionnaire points out, to give further study to the wattage-tank capacity ratios, this can be done in an organized manner and the Standards altered according to the wishes of the electric utility industry. Copies of the American Standard are available from either American Standards Association, Inc., 70 East 45th Street, New York 17, or NEMA, 155 East 44th Street, New York 17.

Reporting Company Comments

Constructive and interesting suggestions were made by a good percentage of reporting companies. These included further steps that might be taken in the standardization program, changes in design, and water heater promotion in general. From these many comments, and from the tabulated survey results, the Water Heating Committee have drawn the following conclusions:

1. A joint NEMA-EEI Committee should make a still further study of higher ratios of wattage to tank capacity with a view to bringing more companies within the standardization program.
2. Wattage standards require further study. Indications are that several size units could well be eliminated, resulting in further standardization.
3. There should be a study of installation problems, wiring of heaters, metering methods and methods of time control with the object of lowering installation costs.
4. Pressure and temperature protective devices and methods of application should be studied and standardized. The EEI Water Heating Committee should consult with other EEI committees and the NEMA Committee who are studying this same subject.
5. There is still a need for improved dealer and customer educational material.
6. An industry study and review of the economics of water heating should be undertaken with special emphasis on rates, methods of control, and charging hours.
7. All utilities should review their water heating policies to ascertain if standard heaters can be used.
8. Tank corrosion problems should receive further study.
9. Nationally, every effort should be made to encourage plumber interest in the sale of electric water heaters.
10. There is an ever-increasing need for larger size heaters.

In final conclusion the Water Heating Committee feels some important gains have been made toward standardization, however a great deal more thought and study is required. We have but one aim and that is through more complete standardization to effect lower cost.

If You Don't Watch Out! Wiring Costs Could Double . . .

IT has happened to others. It can happen to you if you don't watch out. *Restrictive local rules hurt business.* There is a National Standard for wiring—THE NATIONAL ELECTRICAL CODE—why not use it?

A recent survey shows that *over 700* cities and towns now have some form of ordinance or special rules on wiring. Included in these are thousands of rules deviating from the National Electrical Code. In addition, *19 states* have some laws relating to electrical installations.

Every effort of the electrical companies, through sound engineering and standardization, has been to reduce unit cost in plant and in operation. Such has not always been the case with all those responsible for customers' installations. The customer has a big investment now—on the average he spends two dollars for every one spent by the electric company. Don't overlook this, and emphasize to other branches of industry, particularly contractors and labor: LOWER UNIT COSTS RESULT IN GREATER VOLUME FOR ALL.

Watch your local front. What are facts in your area? Where do you stand? Resist all proposed changes that require extra dollars for no gain. Assign responsibility for follow up. If you must have an ordinance or law—keep out the jokers. Check with your association representatives. Send copies of proposed special rules—before they happen—to the Codes & Rules Coordination Subcommittee, c/o H. E. Kent, EEI. Other help available through NFPA, NEMA, NBFU. It is not sufficient merely to check up—but to *follow through.* This is a continuing problem.

CODES & RULES COORDINATION SUBCOMMITTEE
NEC ELECTRIC LIGHT & POWER GROUP

New Planned Office Lighting Program Released

A NEW Planned Lighting Program for use by electric light and power companies, contractors, manufacturers and other interested groups of the electric industry in promotion of Planned Office Lighting, has just been released by the Edison Electric Institute and the Better Light Better Sight Bureau.

The new program offers a Guide Folder with facts about the various new materials together with suggestions for their most effective use; two large 2-color mailers, using the mystery story technique to present Planned Office Lighting facts, and one novelty mailer which stresses the low cost of Planned Lighting by means of a unique chart showing annual office operating costs per square foot, are part of the program. A 2-color, 16-page Customer Booklet for use as a handout piece and follow-up to direct mail requests and a 20-page Visualizer that tells the story of Planned Office Lighting in 10 minutes, is useful as a sales training tool, round out the program's materials.

Wisconsin Companies Sponsor State Fair Exhibit Featuring "Principles for Sound Water Resources Development"

BY tieing in Wisconsin's successful privately-financed river development program with the electric industry's recent recommendations to the President's Water Resources Policy Commission, Wisconsin electric companies and the Wisconsin Valley Improvement Co. have produced a unique exhibit at the Wisconsin State Fair that was viewed by more than 70,000 visitors during Aug. 19 to 27.

Operating Replica Used

Wisconsin Public Service Corp., Wisconsin Power and Light Co. and the Wisconsin Valley Improvement Co. together provided a large operating replica of the water power development of the Wisconsin River for the Electric Exhibit. Industry motion pictures at the Electric Theater and a four-page illustrated tabloid newspaper were also provided for spectators at the State Fair exhibit.

Both the tabloid newspaper and attendants at the exhibit emphasized that the Wisconsin river development program, together with similar developments on other rivers, had been paid for by private investors without cost to taxpayers. An article in the newspaper also explained the recommendations to the President's Commission prepared by the Edison Electric Institute.

Spectators at the exhibit were told that the official presentation of Wisconsin electric companies at the Columbus regional hearing of the President's Commission had recommended the adoption of the Wisconsin idea in developing a water power policy for the nation. It was also pointed out that the Wisconsin projects had minimized floods, abated river pollution and created lakes for recreation.

WISCONSIN RIVER NEWS

Published by Wisconsin Utilities Association — Milwaukee, Wisconsin

MORE MUSCLE POWER FOR THE NATION'S HARDEST WORKING RIVER

Wisconsin's Water Power Program Recommended as Pattern for the Nation

The Wisconsin River
The hardest working river in the nation

Front Page of Tabloid Newspaper Distributed at the Electric Exhibit of the Wisconsin State Fair. The 4-page Newspaper Contained, Among Other Articles, One Explaining the Electric Industry's "Principles for Sound Water Resources Development"

The recommendations of Wisconsin water power users and Wisconsin electric companies stated that " . . . Wisconsin has done a number of noteworthy things with its water powers, and in other fields of interest to a "Water Resources Policy Commission" and it has done them *without one penny of subsidy of any kind and without one penny of cost to any taxpayer!* On the contrary, these enterprises, all the product of private capital and adherence to those self reliance principles which made our nation what it is, are substantial taxpayers themselves.

"Just as our nation's unbelievable preeminence is the result of the sound principles found in our Constitution, the Wisconsin accomplishments rest on sound legislation. Under this legislation we have developed our rivers for the maximum production of power, controlled floods and augmented minimum stream flows with numerous reservoirs, and simultaneously provided outstanding recreational facilities, (and) substantially aided conservation and wild-life propagation."

Motion pictures shown to the State Fair audience included the industry productions "Reddy-Made Magic," Dawn of Better Living," and "The Constant Bride." The Wisconsin River replica, which displayed models of hydro plants lit up successively as larger aerial views of the actual plants were flashed on a rear panel, was attended by lecturers who described Wisconsin water power

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Personnel of EEI Committees for 1950-1951

Appointments to the Edison Electric Institute Committees for the Administrative Year 1950-1951 have been announced by Louis V. Sutton, President of the Institute. Personnel of the Committees are listed on the following pages.

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ENGINEERING DIVISION GENERAL COMMITTEE

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Consolidated Edison Co. of N. Y. Develops "Continuous Training" In Two-Fold Employee Training Program

CONTINUOUS training, as developed in a two-fold employee training program undertaken by the Electric Production Department of Consolidated Edison Co. of New York, Inc., has been designed to meet changing conditions both with respect to the addition of new employees and the effect of technological progress or changes in operating procedures. A special new training aid called the "Train-o-graph" has also been developed to implement the program.

The training program is two-fold because it covers training for new or "green" employees in the fundamentals of job performance and training for experienced employees in effective teaching methods and techniques. These two phases of employee training are appropriately termed job training and instructor training programs.

On-the-Job Training

Job training in Consolidated Edison's Electric Production Department was started in its present form early in 1949 to provide on-the-job training in mechanical operations for boiler cleaners, condenser cleaners, coal and ash handlers and auxiliary operators.

It was designed to supplement the informal "breaking in" method of training, long practiced in System electric generating stations whereby new men learned the ropes by assimilation from working alongside experienced operators. It added a coordinated, systematized approach and improved established training methods.

Handled entirely on company time, this training dove-tails into station operating routine. Occasional group classroom meetings are scheduled during which matters of company policy and benefits affecting employees directly are outlined and discussed.

Instructor Training

The instructor training phase of Electric Production's program began about the same time and has been intensified at most System generating stations since early in 1950. It consists entirely of formal classroom sessions, held about four times a week in each station and differs in this respect from "on-the-job training" of new employees which minimizes formal class gatherings.

The men receiving instructor training are all experienced power plant operators who don't have to be told how to perform their jobs. The purpose of their training, now almost completed in all stations, is to brief them in the most effective methods of passing the benefit of their knowledge and experience along to new employees.

Both instructor and job training are handled in the individual generating stations by station personnel. Each station has a training supervisor who works directly under the general superintendent and who is personally responsible for employee and instructor training in his station.

In these stations experienced supervisors and top-grade operating men representing turbine room, boiler room and coal handling operations were selected to serve as instructors in job training. They will discharge this function on a part-time basis during their normal work shifts when they have completed their course in instructor training which they receive direct from the station training supervisor. This sets up a coordinated program administered and executed entirely by station personnel and adapted to meet individual station requirements.

System-Wide Basis

Although it is applied by the individual stations themselves, the entire training program is administered from top-side on a system-wide basis and headed by a training coordinator. Once a week station training supervisors meet at the Consolidated Edison's main headquarters with the training coordinator and his staff of assistants to administer the program, review overall training policy, develop plans and material and discuss selection of individual instructors.

By the end of this year the ground

A general watch foreman, right, acting as instructor for auxiliary operator training in the two-fold employee training program of the Electric Production Department of Consolidated Edison Co. of N. Y., Inc., explains the effect of spring action on a turbine drive governor to two trainees at the Sherman Creek Station with the aid of the "Train-o-Graph."

Close-up view of the "Train-o-Graph" used for auxiliary operator training in Consolidated Edison's training program, showing the starting sequence for auxiliaries at the Sherman Creek generating station. Numbers identify important points emphasized by subject in the photo and arrows indicating steam or water flow.

work on the program should be completed, instructors trained, standardized techniques, texts and training aids developed so that eventually each station will be able to carry on its own training program along the established pattern with a minimum of staff assistance from the department office.

The overall training program covers more than just job performance. Emphasis is placed on plant safety and proper indoctrination of new employees in required safety practices. Considerable data was provided for this purpose by Consolidated Edison's Safety Bureau, including slides, films and projectors, written and illustrated material, training equipment and visual aids on plant safety procedure.

Successful implementation of any such program requires the cooperation of other Company departments and even outside agencies. Motion pictures, diagrams and drawings were obtained from various manufacturers. Consolidated Edison's Mechancial Engineering Department prepared cross-section diagrams of boilers and other equipment. Special photos were taken by the Company's Photographic Bureau to show equipment in various stages of operation and disassembly.

New Training Aid Developed

Outstanding among new training aids is the "Train-o-graph," a special device developed to facilitate auxiliary operator training at the Sherman Creek electric generating station.

It consists of thirty-eight enlarged photos taken specially for this purpose by the Photographic Bureau. These depict the starting sequence of various auxiliaries at the station. The photos are spiral-bound in two groups of nineteen for easier handling. When the "Train-o-graph" is used, photos are mounted on a companion easel that closes flat when not in use.

One of the big advantages of the "Train-o-graph" is that it can be used anywhere and equipment can be discussed away from operating area if necessary. Explanatory text on the back of the photos facilitates teaching. As he gathers confidence, however, the experienced instructor is expected to resort to the text less and less.

The photos in the "Train-o-graph" show equipment exactly as it appears in actual use at the station. The only embellishment required was an elaborate lighting job when the photos were taken so that background equipment, valve gauges, piping, etc., would show up clearly. Each photo is protected by acetate covering on which easily erasable grease pencil markings or notations can be made during training sessions to emphasize pertinent points.

With this combination of trained instructors well-briefed in teaching techniques and the latest training aids and devices, Consolidated Edison's Electric Production training program is expected to pay dividends far into the future in the form of better trained employees and improved operating efficiency. Furthermore, as time goes on those men who are now receiving their "basic training" will, as a result, be better prepared for their eventual responsibility of training new employees in years to come.

Current Problems and Answers to Be Shared at Fourth Industrial Relations Conference

(*Continued from page* 332)

"Phillips 66," "Buzz Sessions" or "The Small Committee Process." The method will be explained and demonstrated to the delegates as a new, effective way for conducting profitable discussions with very large groups. The afternoon of each of the first two days will be given to special, small groups organized on the spot for consideration of those subdivisions of the main subject which are most important to the delegates at that time.

On the morning of the third day the two subjects announced will be treated concurrently. The meetings will terminate with a one-hour general assembly, a summary by the Chairman, and an evaluation of the entire Conference.

The dinner and evening meeting will be a stimulating one at which Allen H. Mogensen, Consultant in Industrial Engineering and Work Simplification, will describe that management tool, the possibilities of which we in the electric utility industry have not fully explored. When used properly it seems to help a company toward two big goals: improved production or service, and increased job satisfaction.

The Conference fee will be $17.50 which includes the price of the one dinner and two luncheons, as well as a report on the Conference. Reservations should be sent to Mr. E. S. Evans, Secretary, Industrial Relations Committee, Edison Electric Institute, 420 Lexington Avenue, New York 17, New York.

Cost of Electricity Represents 1 Per Cent of Family Budget

THE "Survey of Current Business" (U. S. Department of Commerce) for July, 1950, presents some interesting figures which illustrate the relatively small amount paid for electricity by the average American family.

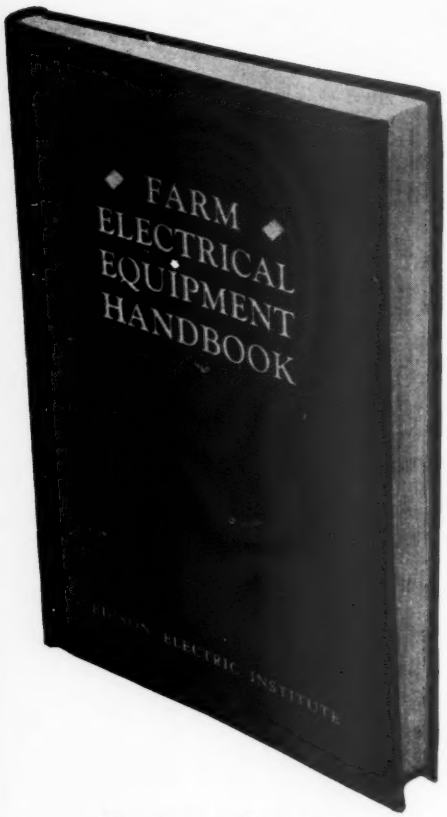
In 1949, the total amount of electricity paid for household operation is shown by the "Survey of Current Business" as $1,746,000,000. This is only four-fifths of what the American family spent for toilet articles, barber shops and beauty parlors and only two-fifths of the expenditures for tobacco. Some of these items are as follows:

PERSONAL CONSUMPTION EXPENDITURES—1949

For tobacco products and smokers' supplies	$4,266,000,000
Toilet articles, barber shops, beauty parlors	2,200,000,000
Telephone service	1,833,000,000
Admissions to movies, theatres, ball games, etc.	1,802,000,000
ELECTRICITY	1,746,000,000
Street car and bus fares	1,429,000,000
Automobile greasing, washing, parking, storage, etc.	1,369,000,000
Cleaning, dyeing, pressing and repair of garments	1,338,000,000
Magazines, newspapers and sheet music	1,266,000,000

The Grand total of personal expenditures for 1949 is given as $178,832,000,000—practically the same as in the previous year—and, of this, the $1,746,000,000 spent for electricity constitutes just 1 per cent.

SOURCE: "Survey of Current Business" July 1950, pages 24, 25.



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The HANDBOOK, an activity of the Utilization Committee of the Farm Section, Commercial Division of the Edison Electric Institute, was adapted from a Master's thesis by Vernon H. Baker at Michigan State College, under a Fellowship Grant from Consumers Power Company, Jackson, Michigan. It was edited by Professor C. N. Turner of Cornell University, and prepared under the general supervision of the Advisory Committee for the Handbook, composed of representatives of the U. S. Office of Education, the U. S. Department of Agriculture and the Electric Light and Power Industry.

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PERSONALS

NORMAN R. SUTHERLAND has become vice president and general manager of Pacific Gas & Electric Co. He succeeds W. G. B. EULER, who has been named executive vice president to assist the president in general supervision of the company's affairs. Mr. Euler also will direct the purchasing department and the department of general construction.

Mr. Sutherland has been with the company for 37 years, most recently as vice president and assistant general manager. He started as a clerk, was appointed commercial manager in the general office in 1923 and in 1945 became manager of the San Francisco division.

He returned to the general office in 1947 as vice president in charge of sales and the next year was made vice president and assistant general manager. Mr. Sutherland has been treasurer of the Pacific Coast Electrical Association since 1927 and is a member of the San Francisco Electric Club.

Mr. Euler began his utility career in 1910 with the engineering staff of Great Western Power Co. Later he was director of operations. He was general superintendent of Great Western when it merged with PG&E and was made general superintendent of the San Francisco and East Bay divisions, directing physical operations of both the gas and electric departments.

Mr. Euler was named chief engineer in 1940, vice president in charge of operations in 1944, and vice president and general manager in 1947. Mr. Euler is a member of the Board of Directors of the Institute.

J. THEODORE WOLFE, executive vice president of Consolidated Gas Electric Light and Power Co. of Baltimore, has been elected a director of the Company, filling the vacancy created by the retirement of Henry R. Cook, Jr. Mr. Wolfe entered the employ of the Consolidated Gas Electric Light and Power Co. of Baltimore in June, 1932, in the executive offices, was appointed assistant to executive vice president in 1938, elected assistant vice president in March 1942, vice president in March 1946 and executive vice president in March 1950. He is vice president of the Baltimore Young Men's Christian Association and director of the Maryland Trust Company and the Provident Savings Bank. He received his A. B. degree from Pennsylvania State College and the degree of MBA from the Harvard University Graduate School of Business Administration.

Z. E. MERRILL has been elected chairman of the Board of Mountain States Power Co. after resigning as president of the company. The election

A. W. TRIMBLE

of A. W. TRIMBLE as president has also been announced.

Mr. Merrill has served the Company for 27 years in various capacities including assistant general manager, vice president, director and president. He was elected to the latter office in December 1937. Reasons of personal health are attributed to his desire to be relieved of the strenuous duties as president of the corporation. As chairman of the Board it is expected he will be chiefly concerned with matters pertaining to financing and other affairs requiring consideration by the directors, although he will also be available for consultation on all matters pertaining to the Company.

Mr. Trimble, who will succeed Mr. Merrill as president, has been associated with Mountain States Power Company since 1930 when he became a member of the accounting staff. He served a number of years as assistant treasurer and from 1942 to 1949 was vice president and treasurer. In 1949 he was made executive vice president and is now serving in that capacity. He has been a director of the Company since 1945.

HERMAN W. BOOZER, comptroller of Georgia Power Co., has been elected a vice president.

After working several years as a certified public accountant with New York and Atlanta accounting firms, Mr. Boozer became assistant general auditor of Alabama Power Co. in 1925. Later he was made general auditor.

In 1937 he returned to Atlanta as general auditor of Georgia Power. He was elected to the board of directors in 1940 and was designated comptroller in 1944.

Mr. Boozer is a past chairman of the accounting section of the Southeastern Electric Exchange, vice president and a director of the Controllers Institute of America, and a past president of the Atlanta chapter of the National Association of Cost Accountants.

ALBERT KAYE has been appointed head distribution engineer for the Western division of the Puget Sound Power & Light Co. at Bremerton, Wash., to succeed the late Floyd Lesa. A Washington State College graduate in 1939, he has been with the company since, except for wartime service as a major in the Army Engineers. HERBERT L. IRVIN moves up to Mr. Kaye's former position of distribution engineer. Mr. Irvin joined Puget Power in 1946 as a field engineer.

KENNETH OXLEY, supervisor of Dayton Power & Light Co.'s electric operations department, has been named manager of that department. ROBERT ISENHART, supervisor of purchases, was made manager of a new purchasing and stores division.

L. F. RIEGEL, general sales manager of Gulf States Utilities Co. for the past 14 years, has been elected a Vice President of the Company. He will continue to direct the Company's sales activities.

Mr. Riegel is an electrical engineering graduate of the University of Minnesota. Immediately after graduation, he went to work for the Northern States Power Co. at Minneapolis. From there

he was transferred to the Connecticut Power Co. at Middletown, then to Savannah Electric and Power Co. In 1925 he became general sales manager of the Virginia Electric & Power Co., where he remained until being transferred to the Gulf States Utilities with headquarters in Beaumont, Texas.

Appointment of ALMER SKRETTING as assistant sales manager and of GLENN R. BLACK as superintendent of industrial sales has been announced by Wisconsin Electric Power Co.

Mr. Skretting, an electrical engineering graduate of the University of North Dakota, has been with the company since 1922, most of the time in power sales work. He became assistant superintendent of industrial sales in 1945 and superintendent of that division in 1948. He is a past president of the Great Lakes Power Club and is active in industrial power groups of the Edison Electric Institute and Wisconsin Utilities Association. He served overseas for 18 months in World War I.

Mr. Black started with the company in 1928 as a junior engineer after graduating from the University of Illinois in electrical engineering. He was engaged in power sales and water heater sales work and had been assistant superintendent of industrial sales since 1948. He is active in the Great Lakes Power club and a member of the American Welding Society and Engineers' Society of Milwaukee. He served for five years in World War II, rising to the rank of lieutenant colonel, and now is a colonel in the army reserve.

OTTO W. MANZ, JR., has been appointed manager of the System Operation Department of Consolidated Edison Co. of New York, Inc.

Mr. Manz is the latest of several men who have been placed in key positions after acquiring system-wide experience through the Company's Executive Development Program.

A graduate of University of Pennsylvania, Mr. Manz joined Brooklyn Edison, as field tester. He had advanced to division engineer when placed on the Executive Development Program. Subsequently, he served in various posts in Electric Production, Gas Production and Station Construction and Shops Department and as assistant manager, System Operation.

In 1943, he was loaned to Carbide and Carbon Chemical Corporation, which was then building what is said to be the largest electric generating station serving a commercial plant for the Manhattan Project at Oak Ridge, Tenn. Mr. Manz assisted in the construction and then, for two years, ran both the plant and the distribution system. He returned to Consolidated Edison in 1946.

Since 1947, Mr. Manz has been secretary of the committee on System Engineering of the American Institute of Electrical Engineers. Since May, 1950, he has been chairman of the Natural Gas Operations Committee of the five New York utility companies which will receive natural gas through the new Transcontinental pipeline.

ALFRED J. WHEELER, process engineer for Consolidated Edison Co. of New York, who is considered an authority on coal characteristics, has retired after 43 years with the system. Mr. Wheeler joined N. Y. Edison Co.'s operating department in 1907. He has been superintendent of the East River and Hell Gate generating stations in New York City.

CHARLES E. POEHNERT, secretary-treasurer, and THEODORE C. HART, assistant secretary-treasurer, of the Hartford Electric Light Co., have retired.

CHARLES T. DWIGHT, present assistant treasurer, has been named secretary-treasurer, FRED W. MURPHY, chief accountant, becomes assistant secretary, and JOSEPH A. HALLISEY, auditor of disbursements, becomes assistant treasurer.

Other appointments announced were: CYRIL D. BELANGER, supervisor of customer accounting; WILLIAM E. CAMPION, supervisor of disbursements; JOSEPH C. LISTRO, supervisor of corporate accounts; JOHN B. MADIGAN, assistant to the treasurer; and JAMES A. QUIGLEY, supervisor of credits.

Mr. Dwight has served as assistant treasurer since 1947. He is a native of New York and lives in West Hartford. He is a graduate of Massachusetts Institute of Technology and joined the company in 1932 as an assistant in the executive department. He was appointed statistical engineer in January, 1946, upon his return from four years' naval service.

Mr. Murphy entered the company's employ in 1911 and has served in various capacities in the auditing and accounting departments. He was made assistant chief accountant in 1936 and chief accountant in 1947.

Mr. Hallisey entered the employ of the company in 1912. In his 38 years there, he has been in the supply, purchasing and auditing departments.

Upon his retirement, Mr. Poehnert will have completed 43 years of service, having joined the company in August, 1907, as clerk in the accounting department. He served in various supervisory capacities in the accounting department and was elected assistant secretary in 1929, assistant treasurer in June, 1946, and secretary-treasurer January 1, 1947.

Mr. Hart, who has completed forty years' service with the company, joined the company after high school and business college training. He previously was employed by the Electric Vehicle Company and Pope Manufacturing Company. His work with the company has ranged from ledger clerk, supervisor of credits and collections and chief accountant. He was elected assistant secretary in 1945 and assistant treasurer in 1946.

FRED D. KNIGHT, vice president of Hartford (Conn.) Electric Light Co., has been awarded an honorary doctor of engineering degree by the University of Maine. He formerly was with Boston Edison Company.

WALTER H. KELLY, industrial development manager of West Penn Power Co., has retired. Promoted to succeed him is CHARLES M. FIFE, manager of West Penn's Electric Home Bureau. Y. L. RIPLEY, assistant Electric Home manager, becomes manager of the Bureau.

Mr. Kelly, who has been responsible for bringing a number of new industries into western Pennsylvania, has been on the utility's staff over 30 years.

From 1922 until 1927, Mr. Kelly supervised the construction of many West Penn installations.

He served during World War II as Chairman of the Board of Governors of the Smaller War Plants Corp. and also as Vice Chairman of the Committee for Economic Development for the Western Pennsylvania area. He has been active in the American Industrial Development Council, Pennsylvania Chamber of Commerce Executives Association and served as Vice Chairman of the Pennsylvania State Community Development Committee.

Mr. Fife, a 27-year West Penn veteran, organized and became manager of

the Company's Electric Home Bureau in 1939.

He has served as chairman of the National Adequate Wiring Bureau's Plan Committee, a member of the National Fire Protection Association Electrical Committee, and on various committees of the Electric League of Western Pennsylvania, Pennsylvania Electric Association and Edison Electric Institute.

Mr. Ripley, who joined West Penn in 1936, graduated from Virginia Polytechnic Institute as a registered professional engineer. Mr. Ripley served during World War II as a lieutenant colonel in the Army Engineers, and upon his return from service was promoted to assistant Home Bureau manager. He is a member of the Electric League of Western Pennsylvania and the Illuminating Engineering Society.

D. W. NETHERCUT and LOUIS F. FERRI have joined Commonwealth Services, Inc., Jackson, Mich. Both came from the central engineering department of Ohio Public Service Co. Mr. Nethercut, who has been system planning engineer, will hold a similar post with Commonwealth. He had been with Ohio Public Service and its predecessor since 1919 and had served as distribution superintendent in Mansfield and Sandusky. He is a fellow of the American Institute of Electrical Engineers. Mr. Ferri spent 25 years with Ohio Public Service, most recently with responsibility for electrical equipment design and the work of the testing laboratory.

ARTHUR M. GUY has joined Commonwealth Services Inc., Jackson, Mich. as a chemical engineer. He has been with Pennsylvania Power Company since 1935, most recently as test and results engineer.

Mr. Guy has been a member of the Joint Research Committee on boiler feed-water studies sponsored by EEI, ASME and other organizations and has also been a member of the power station chemistry subcommittee of the EEI Prime Movers Committee.

JOSEPH M. REYNOLDS and CLAUDE E. WOOD have been named to executive offices in Birmingham Electric Co. by the board of directors.

Mr. Reynolds, who has been assistant to the president, was elected vice president as well as assistant secretary and assistant treasurer. Mr. Wood, assistant secretary and assistant treasurer, succeeds E. P. Berry as secretary and treasurer.

Mr. Reynolds joined the company in 1922. He has been auditor, executive assistant, and assistant to the president of Birmingham Electric.

Mr. Wood, who joined the company in 1919, has been assistant secretary and assistant treasurer since 1945.

Mr. Berry has retired after 45 years' service. He was elected secretary and treasurer in 1934 and became a director in 1945.

PHILIP C. PRAY has been appointed superintendent of the northeastern division of the New England Power Co. with headquarters at Lawrence, Mass. He succeeds the late JOHN W. KEENEY. Mr. Pray has been with New England Power since 1920. RONALD P. O'HANLEY has been appointed personnel director for the New England Electric System companies in the Mystic Valley area of Massachusetts. He will continue to handle public relations for the Malden companies. ELMER C. STEVENS has been named personnel representative for New England Electric System companies centering in Lowell, Mass. In addition to his job as power sales supervisor for system companies at Salem, Mass., FRED DONOVAN will take on the duties of personnel representative in his area.

H. R. SELFRIDGE, assistant to the central division superintendent of New England Power Co. at Worcester, Mass., has been named an operating assistant for the power company. His headquarters will be in Boston.

B. G. LARSON, technical assistant in the western division of New England Power since 1942, has been transferred to Worcester in that capacity. DANIEL T. CHANE, JR., has been appointed an executive assistant of the Mystic Valley and North Shore districts of the New England Electric System.

Mr. Selfridge started with General Electric Co. in 1927 and went to the power company at Worcester as technical assistant in 1929. Mr. Larson joined the system in 1935 and for a time was an operator at Millbury. Later he went into meter work at Shelburne Falls. Mr. Chane was with Stone and Webster in New York and Jackson & Moreland in Boston before engaging in rate work for New England Power Service Company.

K. A. HOME has been appointed district manager for Pacific Power & Light Co. at Hood River, Ore. He succeeds C. O. BUNNELL, who has retired. Mr. Home will be succeeded as Dayton, Wash., manager by TOM TEENAN, the company's assistant general manager at Walla Walla, Wash., for the past year.

GEORGE J. KUEHNLE, JR., has been appointed manager of the Northern division of The Cincinnati Gas & Electric Co., with headquarters in Middletown. He succeeds ARCH ROBINSON, who resigned to become city manager at Celina. Mr. Kuehnle went to Middletown in 1949 as the company's industrial development representative.

V. K. BABCOCK, director of budget control of Central Arizona Light & Power Co., has been made manager of the company's new industrial development department. The first company man assigned to work exclusively on industrial development, he will have the job of attracting new industry to Arizona, creating new industry within the state, and aiding existing industries to expand their production and marketing facilities.

MORT KIMSEY has been named Scottsdale district manager of Central Arizona Light and Power Company.

W. B. FARNSWORTH, merchandise manager of Georgia Power Co. since 1941, has been appointed assistant to the president. He succeeds the late Charles S. Hammond. Mr. Farnsworth joined the company as a buyer in the purchasing department. He held supervisory positions in the Macon, Augusta, and Rome divisions before becoming assistant and then merchandise manager. HOWARD WILSON, assistant merchandise manager, has been appointed merchandise manager, succeeding Mr. Farnsworth. R. L. BROOKS, commercial sales supervisor, has been made assistant merchandise manager.

W. S. WELDAY has been named manager of an enlarged eastern division of Ohio Power Co. The eastern and Sunnyside divisions were merged, with Steubenville as headquarters and the Sunnyside offices at Bellaire as a district office. Assistant manager of the new division is W. S. JUDY.

E. W. HODGETTS has been named assistant manager of sales promotion by The Cincinnati Gas and Electric Co. He had been assistant manager of the publicity department.

Wisconsin Companies Sponsor State Fair Exhibit

(*Continued from page* 339)

development. Other articles in the tabloid added to this description and included the full text of the official presentation of Wisconsin electric companies to the President's Commission.

In addition, the Electric Exhibit included Wisconsin Electric Power Co.'s model operating farm showing pushbutton farming, provided by the company's extension division. Two large signs were on display—one naming the electric companies sponsoring the exhibit along with a map showing the territories they serve, and the other stating that the average workman has 157 electric servants at his elbow, and that American workmen earn an average of $1.25 an hour; British, 53 cents an hour and Russian, 12 cents an hour.

Personnel of EEI Committees for 1950-1951

(*Continued from page* 353)

J. L. COYNE, Rochester Gas and Electric Corp., Rochester, N. Y.

R. M. CREGAR, Public Service Electric and Gas Co., Newark, N. J.

H. F. DOUGHERTY, Kansas City Power & Light Co., Kansas City, Mo.

LINN EDSALL, Philadelphia Electric Co., Philadelphia, Pa.

E. J. GRAHAM, Public Service Company of Colorado, Denver, Colo.

C. R. JACOBSON, Commonwealth Associates Inc., Jackson, Mich.

R. M. MIDDLETON, San Diego Gas & Electric Co., San Diego, Calif.

H. L. PARLETTE, Long Island Lighting Co., Mineola, N. Y.

J. Y. RAY, Virginia Electric and Power Co., Richmond, Va.

A. W. WAGNER, Pennsylvania Power & Light Co., Hazleton, Pa.

RANDOLPH WHITFIELD, Georgia Power Co., Atlanta, Ga.

D. K. WILSON, Niagara Mohawk Power Corp., Albany, N. Y.

CONVENTIONS AND MEETINGS

1950

SEPTEMBER

25-27 American Trade Association Executives Annual Meeting, Somerset Hotel, Boston, Mass.
27-29 Canadian Electrical Manufacturers Association Annual Meeting, General Brock Hotel, Niagara Falls, Ontario, Can.
27-30 Association of Edison Illuminating Companies Annual Meeting, Colorado Springs, Colo.
28 Industrial Relations Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.

OCTOBER

2-3 Prime Movers Committee, EEI, Copley Plaza Hotel, Boston, Mass.
2-6 American Gas Association Annual Convention, Atlantic City, N. J.
3-5 American Institute of Electrical Engineers, District No. 2, Baltimore, Md.
5-6 Pennsylvania Electric Association, Transmission and Distribution Committee, Irem Temple Country Club, Dallas, Pa.
8-11 47th Annual Convention, Rocky Mountain Electrical League, Broadmoor Hotel, Colorado Springs, Colo.
9-10 Electric Equipment Committee, EEI, Chamberlin Hotel, Old Point Comfort, Va.
11-13 Indiana Electric Association Annual Convention, French Lick Springs Hotel, French Lick, Ind.
11-13 American Society of Civil Engineers, Fall Meeting, Chicago, Ill.
11-14 International Association of Electrical Leagues, 15th Annual Conference, Copley Plaza Hotel, Boston, Mass.
16-17 Iowa Utilities Association Management Conference, Fort Des Moines Hotel, Des Moines, Iowa.
16-20 38th National Safety Congress, Chicago, Ill.
17 Oklahoma Utilities Association, Western District, Chickasha, Okla.
17-21 National Electrical Contractors Association Annual Convention, Biltmore Hotel, Los Angeles, Calif.
19 Oklahoma Utilities Association, Eastern District, Muskogee, Okla.
19-20 Transmission and Distribution Committee, EEI, Hotel New Yorker, New York, N. Y.
23-27 American Institute of Electrical Engineers, Fall General Meeting, Skirvin Hotel, Oklahoma City, Okla.
25-27 Meter and Service Committee, EEI, Robert Treat Hotel, Newark, N. J.
30-31 Rural and Urban Development Committee, EEI, Regional Conference, Hotel Rattison, Minneapolis, Minn.

NOVEMBER

2 Pacific Coast Electrical Association, Operating Economics Section Conference, San Francisco, Calif.
2-3 Pennsylvania Electric Association, Prime Movers Committee, Benjamin Franklin Hotel, Philadelphia, Pa.
8-10 Wisconsin Utilities Association, Electric and Gas Section, Schroeder Hotel, Milwaukee, Wisc.
9 Pacific Coast Electrical Association, Business Development Section Conference, Fresno, Calif.
9-10 Southeastern Electric Exchange, Accounting Conference, St. Petersburg, Fla.
13-15 Industrial Relations Committee, EEI, Fall Round Table Conference, Netherlands Plaza Hotel, Cincinnati, Ohio.
13-16 National Electrical Manufacturers Association, Chalfonte-Haddon Hall, Atlantic City, N. J.
16-17 Pacific Coast Electrical Association, Administrative Services Section Conference, Los Angeles, Calif.
17-18 New Jersey Utilities Association Annual Meeting, Seaview Country Club, Absecon, N. J.
27-29 A.S.A. Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

DECEMBER

13 Industrial Relations Committee, EEI, 420 Lexington Ave., New York, N. Y.

1951

JANUARY

18 Industrial Relations Committee, EEI, Detroit, Mich.
22-26 American Institute of Electrical Engineers, Annual Meeting, New York, N. Y.

MARCH

10-13 National Electrical Manufacturers Association, Chicago, Ill.
15 Industrial Relations Committee, EEI, Boston, Mass.

APRIL

2-5 17th Annual EEI Sales Conference, Edgewater Beach Hotel, Chicago, Ill.
19 Industrial Relations Committee, EEI, 420 Lexington Ave., New York, N. Y.
23-25 1951 Conference of Electric and Gas Utility Accountants, Hotel Sherman, Chicago, Ill.

JUNE

4-7 EDISON ELECTRIC INSTITUTE, Nineteenth Annual Convention, Denver, Colo.

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

OFFICERS

L. V. SUTTON, *President*.....Carolina Power and Light Co., Raleigh, N. C.
H. B. BRYANS, *Vice President*.....Philadelphia Electric Co., Philadelphia, Pa.
H. S. BENNION, *Vice President and Managing Director*...420 Lexington Avenue, New York, N. Y.
K. B. CRUMB, *Treasurer*.....American Gas & Electric Service Corp., New York, N. Y.
MAE B. WOODS, *Secretary*.....420 Lexington Avenue, New York, N. Y.

BOARD OF DIRECTORS

(Terms Expiring 1951)

J. M. BARRY,.....Alabama Power Co., Birmingham, Ala.
STUART COOPER .....Delaware Power and Light Co., Wilmington, Del.
GEORGE M. GADSBY.....Utah Power and Light Co., Salt Lake City, Utah
D. E. KARN.....Consumers Power Co., Jackson, Mich.
J. E. LOISEAU.....Public Service Co. of Colorado, Denver, Colo.
D. C. LUCE.....Public Service Electric and Gas Co., Newark, N. J.
PAUL B. McKEE.....Pacific Power and Light Co., Portland, Ore.
C. B. McMANUS.....Georgia Power Co., Atlanta, Ga.
S. C. McMEEKIN.....South Carolina Electric & Gas Co., Columbia, S. C.
GROVER C. NEFF.....Wisconsin Power and Light Co., Madison, Wis.
P. H. POWERS.....West Penn Power Co, Pittsburgh, Pa.
HAROLD QUINTON .....Southern California Edison Co., Los Angeles, Cal.
J. B. THOMAS.....Texas Electric Service Co., Ft. Worth, Texas
JOHN T. WARD.....Boston Edison Co., Boston, Mass.
W. F. WYMAN.....Central Maine Power Co., Augusta, Maine

(Terms Expiring 1952)

W. C. BECKJORD.....The Cincinnati Gas & Electric Co., Cincinnati, Ohio
H. B. BRYANS.....Philadelphia Electric Co., Philadelphia, Pa.
H. C. CUMMINS.....Northern States Power Co., Minneapolis, Minn.
CHAS. B. DELAFIELD.....Consolidated Edison Co. of New York, Inc., New York, N. Y.
W. G. B. EULER.....Pacific Gas and Electric Co., San Francisco, Cal.
J. G. HOLTZCLAW.....Virginia Electric & Power Co., Richmond, Va.
F. C. KELLOGG.....Pioneer Service and Engineering Co., Chicago, Ill.
C. E. KOHLHEPP.....Wisconsin Public Service Corp., Milwaukee, Wis.
P. H. McCANCE.....Duquesne Light Co., Pittsburgh, Pa.
R. E. MOODY.....Union Electric Co. of Missouri, St. Louis, Mo.
IRWIN L. MOORE.....New England Electric System, Boston, Mass.
A. T. O'NEILL.....Niagara Mohawk Power Corp., Buffalo, N. Y.
HAROLD TURNER .....The Ohio Power Co., Canton, Ohio
G. W. VAN DERZEE.....Wisconsin Electric Power Co., Milwaukee, Wis.
FRANK M. WILKES..... Southwestern Gas & Electric Co., Shreveport, La.

(Terms Expiring 1953)

A. M. BEEBEE.....Rochester Gas and Electric Corp., Rochester, N. Y.
C. P. CRANE.....Consolidated Gas Electric Light & Power Co. of Baltimore, Baltimore, Md
E. W. DOEBLER.....Long Island Lighting Co., Mineola, L. I.
M. F. GILL.....Kansas Gas and Electric Co., Wichita, Kan.
N. B. GUSSETT.....Iowa Power and Light Co., Des Moines, Iowa
D. S. KENNEDY.....Oklahoma Gas and Electric Co., Oklahoma City, Okla.
L. M. KLAUBER.....San Diego Gas and Electric Co., San Diego, Cal.
R. H. KNOWLTON.....The Connecticut Light and Power Co., Hartford, Conn.
E. L. LINDSETH.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
H. E. MEADE.....New Orleans Public Service Inc., New Orleans, La.
J. W. PARKER.....The Detroit Edison Co., Detroit, Mich.
H. T. PRITCHARD.....Indianapolis Power and Light Co., Indianapolis, Ind.
K. M. ROBINSON.....The Washington Water Power Co., Spokane, Wash.
L. V. SUTTON.....Carolina Power and Light Co., Raleigh, N. C.
H. C. THUERK.....New Jersey Power and Light Co., Dover, N. J.

Executive Committee

W. C. Beckjord, C. P. Crane, C. B. Delafield, E. W. Doebler, R. H. Knowlton, E. L. Lindseth, D. C. Luce, P. H. Powers, and J. T. Ward.

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

(Continued)

ADVISORY COMMITTEE 1950-1951

D. C. BARNES.....Virginia Electric & Power Co., Charlottesville, Va.
E. F. BARRETT..Long Island Lighting Co., Mineola, N. Y.
S. R. BERTRON.....Houston Lighting & Power Co., Houston, Tex.
J. B. BLACK.....Pacific Gas and Electric Co., San Francisco, Calif.
GEORGE H. BLAKE....Public Service Electric & Gas Co., Newark, N. J.
B. F. BRAHENEY.....Northern States Power Co., Minneapolis, Minn.
PRENTISS BROWN..The Detroit Edison Co., Detroit, Mich.
CURTIS E. CALDER.....Electric Bond & Share Co., New York, N. Y.
J. W. CARPENTER..Texas Power & Light Co., Dallas, Tex.
H. P. LIVERSIDGE.....Philadelphia Electric Co., Philadelphia, Pa.
EARLE J. MACHOLD.....Niagara Mohawk Power Corp., Syracuse, N. Y.
T. W. MARTIN...Alabama Power Co., Birmingham, Ala.
J. W. MCAFEE.....Union Electric Co. of Missouri, St. Louis, Mo.
W. C. MULLENDORE....Southern California Edison Co., Los Angeles, Calif.
A. B. PATERSON.....New Orleans Public Service, Inc., New Orleans, La.
W. H. SAMMIS.....Ohio Edison Co., Akron, Ohio
WILLIAM SCHMIDT, JR., Consolidated Gas Electric Light & Power Co., Baltimore, Md.
PHILIP SPORN...American Gas & Electric Service Corp., New York, N. Y.
A. H. KEHOE....Consolidated Edison Co. of N. Y., Inc., New York, N. Y.
E. S. THOMPSON.....The West Penn Electric Co., Inc., New York, N. Y.
J. V. TONER.....Boston Edison Co., Boston, Mass.
J. R. WHITING....Consumers Power Co., Jackson, Mich.
E. A. YATES.....The Southern Co., New York, N. Y.

CHAIRMEN OF EDISON ELECTRIC INSTITUTE COMMITTEES (1950-1951)

ACCOUNTING

Accounting Division Executive, RALPH H. SMITH.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
Application of Accounting Principles, H. H. SCAFF.....Ebasco Services Inc., New York, N. Y.
Customer Activities, R. B. MCCROREY.....Georgia Power Co., Atlanta, Ga.
Depreciation Department, A. E. BAUHAN.....Public Service Electric & Gas Co., Newark, N. J.
General Accounting, L. C. PROVENCHER.....The Detroit Edison Co., Detroit, Mich.
Plant Accounting and Records, C. E. RAINES.....Niagara Mohawk Power Corp., Syracuse, N. Y.
Taxation, C. WIGAND.....Commonwealth Services, Inc., New York, N. Y.

COMMERCIAL

Commercial Division General, M. E. SKINNER.....Union Electric Co. of Missouri, St. Louis, Mo.
Sales Personnel and Training, R. J. MILLER.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
Wiring and Specifications, R. W. WILSON.....Kentucky Utilities Co., Inc., Lexington, Ky.
Commercial Sales Section, C. D. HOLLISTER.....Niagara Mohawk Power Corp., Albany, N. Y.
Farm Section, R. T. JONES.....Pennsylvania Power and Light Co., Allentown, Pa.
Industrial Power and Heating Section, ROBERT G. ELY.....Public Service Electric & Gas Co., Newark, N. J.
Residential Section, E. O. GEORGE.....The Detroit Edison Co., Detroit, Mich.

ENGINEERING

Engineering Division General, H. P. SEELYE.....The Detroit Edison Co., Detroit, Mich.
Electrical Equipment, J. H. FOOTE.....Commonwealth Associates, Inc., Jackson, Mich.
Hydraulic Power, G. J. VENCILL.....Union Electric Co. of Missouri, St. Louis, Mo.
Meter and Service, H. A. BROWN.....Rochester Gas & Electric Corp., Rochester, N. Y.
Prime Movers, F. P. FAIRCHILD.....Public Service Electric & Gas Co., Newark, N. J.
Transmission and Distribution, J. E. MCCORMACK.....Consolidated Edison Co. of New York, Inc., New York, N. Y.

GENERAL

Accident Prevention, W. T. ROGERS.....Ebasco Services Inc., New York, N. Y.
Codes and Standards, D. C. LUCE.....Public Service Electric & Gas Co., Newark, N. J.
Electric Power Survey, WALKER L. CISLER.....The Detroit Edison Co., Detroit, Mich.
Financing and Investor Relations, C. E. OAKES.....Pennsylvania Power and Light Co., Allentown, Pa.
Industrial Relations, S. F. LEAHY.....The Detroit Edison Co., Detroit, Mich.
Insurance, I. M. CARPENTER.....Ebasco Services Inc., New York, N. Y.
Legal, RALPH M. BESSE.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
Membership, E. S. THOMPSON.....The West Penn Electric Co., Inc., New York, N. Y.
Prize Awards, G. E. WHITWELL.....Philadelphia Electric Co., Philadelphia, Pa.
Purchasing and Stores, H. E. HODGSON.....Wisconsin Power & Light Co., Madison, Wis.
Rate Research, HARRY I. MILLER.....Wisconsin Public Service Co., Oshkosh, Wis.
Rural and Urban Development, G. R. KEEGAN.....Western Massachusetts Electric Co., Springfield, Mass.
Statistical, ELDRED H. SCOTT.....The Detroit Edison Co., Detroit, Mich.
Transportation, S. G. PAGE.....Duquesne Light Co., Pittsburgh, Pa.